HiPath 3000/HiPath 5000
Version 6.0

Feature Description

SIEMENS

Global network of innovation

Contents

1 Description of Features 1-1

2 Features for All Traffic Types 2-1
2.1 Call hold 2-1
2.2 Parking 2-3
2.3 Toggle/Connect 2-5
2.4 Transfer before answering 2-6
2.5 Screened Transfer 2-8
2.6 Conference 2-9
2.7 Music on Hold (Internal or External Source) 2-12
2.8 Announcements 2-15
2.9 Consultation Hold 2-17
2.10 Automatic recall 2-18
2.11 Setting the Dialing Method for Analog Stations 2-20
2.12 optiPoint Attendant 2-21
2.13 Override 2-23
2.14 Overload Indication 2-25
2.15 Shared Transfer Switch (For Germany Only) 2-26
2.16 Entry Voice Mail EVM 2-27
2.17 Whisper/Off Hook Announcement 2-30

3 Features for General Traffic 3-1
3.1 Features for General Incoming Traffic 3-1
3.1.1 Distinctive Ringing 3-1
3.1.2 Call Waiting Tone/Call Waiting 3-4
3.1.3 Call Management (CM) 3-6
3.1.4 Call Forwarding—No Answer (CFNA) With a Timeout 3-11
3.1.5 Call Forwarding (CF)—Busy and No Answer 3-14
3.1.6 Call Forwarding (CF) 3-16
3.1.7 Subscriber Groups 3-19
3.1.8 Group call 3-20
3.1.9 Group Call with Busy Signaling 3-22
3.1.10 Hunt Group 3-24
3.1.11 Leave Group Call/Hunt Group (Stop Hunt) 3-27
3.1.12 Universal Call Distribution 3-28
3.1.12.1 UCD Queues 3-33
3.1.12.2 UCD Call Prioritization 3-34
3.1.12.3 UCD Subscriber States 3-35
3.1.12.4 Available/Not available 3-37
3.1.12.5 Wrap up 3-38
3.1.12.6 Recorded Announcement/Music on Hold (MOH) with UCD 3-39

Contents

3.1.12.7 Overflow . . . 3-41
3.1.12.8 Automatic Incoming Call Connection (AICC) with UCD . . . 3-42
3.1.12.9 UCD Night Service . . . 3-44
3.1.12.10 UCD Group Status Display . . . 3-45
3.1.12.11 UCD Home Agent . . . 3-46
3.1.12.12 Transfer to UCD Groups . . . 3-47
3.1.13 Silent Monitoring (For Selected Countries Only) . . . 3-48
3.1.14 Do Not Disturb (DND) . . . 3-50
3.1.15 Ringer Cutoff . . . 3-52
3.1.16 Missed Calls List/Station Number Storage . . . 3-53
3.1.17 Call Pickup (AUN) Within Call Pickup Groups . . . 3-55
3.1.18 Targeted call pickup outside of a pickup group . . . 3-56
3.1.19 Call Pickup from Answer Machine . . . 3-58
3.1.20 Fax Waiting Message/Answer Machine . . . 3-59
3.1.21 Deferring a Call . . . 3-60
3.1.22 Station Number Configuration Using Manager T . . . 3-61
3.1.23 ANI (For Selected Countries Only) . . . 3-62
3.1.24 Reject Calls . . . 3-63
3.2 Features for General Outgoing Traffic . . . 3-64
3.2.1 Dual-Tone Multifrequency Transmission (DTMF)/Temporary Signaling Method Changeover . . . 3-64
3.2.2 Individual Lock Code . . . 3-66
3.2.3 System Telephone Lock (Changeover) . . . 3-68
3.2.4 Automatic COS Changeover after Timeout . . . 3-70
3.2.5 Hotline . . . 3-73
3.2.6 Mobile PIN (FlexCall) . . . 3-75
3.2.7 B Channel Allocation . . . 3-77

4 Features for External Traffic . . . 4-1
4.1 Features for General External Traffic . . . 4-1
4.1.1 Multi-Device Connections . . . 4-1
4.1.2 Multi-Device Connection (for U.S. Only) . . . 4-2
4.1.3 Routes . . . 4-5
4.1.4 Trunk Keys . . . 4-8
4.1.5 Call Keys . . . 4-11
4.1.6 Transit Traffic . . . 4-13
4.1.7 Translate Station Numbers to Names for System Speed Dialing . . . 4-16
4.1.8 Message Waiting Indication (MWI) at the Trunk Interface . . . 4-17
4.2 Features for Incoming External Traffic . . . 4-18
4.2.1 Call Allocation . . . 4-18
4.2.2 Call Connection . . . 4-20
4.2.3 Night Service . . . 4-22
4.2.4 Direct Inward Dialing . . . 4-25
4.2.5 Selective Seizure of a DID Number Using a MUSAP Key . . . 4-26
4.2.6 Signaling of Direct Inward Dialing Numbers for Incoming Calls . . . 4-27

4.2.7 Direct Inward System Access (DISA) 4-28
4.2.8 Intercept Conditions 4-30
4.2.9 DTMF DID 4-33
4.2.10 Announcement Before Answering 4-35
4.2.11 Call Collect Barring Per Trunk (for Brazil only) 4-37
4.2.12 Call Collect Barring per Station 4-38
4.2.13 Analog Direct Inward Dialing with MFC-R2 4-39
4.2.14 Centralized Attendant Service CAS (for U.S. only) 4-41
4.3 Features for Outgoing External Traffic 4-43
4.3.1 Number Redial 4-43
4.3.2 System Speed Dialing 4-46
4.3.3 System Speed Dialing in Tenant Systems 4-49
4.3.4 Station Speed Dialing in System 4-51
4.3.5 Trunk Seizure Type and Simplified Dialing 4-53
4.3.6 Block Dialing 4-55
4.3.7 Dial Tone Detection 4-56
4.3.8 End-of-Dialing Recognition 4-58
4.3.9 Trunk Dialing Method 4-59
4.3.10 Configurable Toll Restriction 4-60
4.3.11 Traffic Restriction Groups 4-63
4.3.12 Private Trunk 4-65
4.3.13 Trunk Queuing 4-66
4.3.14 Temporary Station Number Display Suppression 4-68
4.3.15 Denied List for Undialed Trunks 4-70
4.3.16 Assigning Speed-Dialing Numbers to ITR Groups 4-71
4.3.17 Telephone Lock Intercept 4-72
4.3.18 Keypad Dialing 4-73
4.3.19 E911 Emergency Call Service for the USA (for U.S. only) 4-75
4.3.20 Trunk Release for Emergency Call (V4.0 SMR-9 or Later) 4-77
4.3.21 Automatic Call Completion on No Reply (CCNR) on the Trunk Interface . . . 4-78
4.3.22 CLIP no screening 4-79

5 Description of Features for Least Cost Routing 5-1
5.1 Least Cost Routing (LCR) (Not for U.S.) 5-1
5.1.1 Carrier Types 5-3
5.1.1.1 Mercury Communications Limited Single Stage 5-3
5.1.1.2 Mercury Communications Limited Two Stage 5-4
5.1.1.3 Dial-In Control Server (DICS) 5-5
5.1.1.4 Corporate Network (CN) 5-6
5.1.1.5 Main network supplier 5-6
5.1.2 Routing Tables 5-7
5.2 Least Cost Routing (for U.S. Only) 5-13
5.2.1 Introduction 5-13
5.2.2 Carrier Types 5-15
5.2.3 Using Alternate Carriers 5-16

Contents

5.2.3.1 Carrier Access Methods Supported 5-16
5.2.4 LCR Time of Day Evaluation 5-17
5.2.5 LCR Dial Rules 5-17
5.2.6 Expensive Route Identification 5-18
5.2.7 Overflow Options 5-18
5.2.8 LCR Class of Service 5-18
5.2.9 Carrier-Select Override 5-18
5.2.10 Handling of Numbers and Destinations and Trunk Group Access Codes 5-18
5.2.11 Correlation With Other Features 5-18
5.2.11.1 Station-Related Features 5-19
5.2.11.2 Trunk-Related Features 5-19
5.2.12 Routing Tables 5-20
5.2.13 LCR Dial Plan 5-20
5.2.13.1 Rules for Creating LCR Dial Plan Entries 5-23
5.2.14 Route table 5-23
5.2.15 Schedule 5-24
5.2.16 Dialing Rules Table 5-24
5.2.17 Operation 5-27

6 Features for Internal Traffic 6-1
6.1 Internal Traffic 6-1
6.2 Direct Station Selection (DSS)/Repertory Dial Key 6-2
6.3 Names 6-6
6.4 Automatic Callback When Free or Busy 6-7
6.5 Entrance Telephone/Door Opener 6-9
6.6 Speaker call 6-10
6.7 Transfer from Announcement 6-12
6.8 Radio Paging Equipment (PSE) 6-13
6.8.1 Simple Radio Paging Equipment/Simple PSE (not for U.S.) 6-13
6.8.2 Radio Paging Equipment via ESPA/Enhanced Radio Paging Equipment (Not for U.S.) 6-14
6.9 Message Texts / Mailboxes / Message Waiting 6-15
6.10 Advisory Messages 6-19
6.11 Internal Phonebook 6-21
6.12 LDAP Telephone Directory (V4.0 SMR-7 and later) 6-23
6.13 Room Monitor 6-25
6.14 Editing the Telephone Number 6-27

7 Tenant Service 7-1
7.1 Tenant Service Configuration 7-2

8 Other Features 8-1
8.1 Voice Channel Signaling Security 8-1
8.2 Date and Time Display 8-2
8.3 Relays 8-4
8.4 Sensors 8-8

8.5 Multilingual Text Output 8-10
8.6 Associated Dialing 8-12
8.7 Associated Services 8-14
8.8 Display Number of Stations with Direct Trunk Access (for Austria Only) 8-16
8.9 Services in the Talk State 8-17
8.10 Reset Activated Features 8-18
8.11 Relocate (Hoteling) 8-20
8.12 Automatic Wake-up System/Timed Reminders 8-25
8.13 Delete All Station Numbers 8-26
8.14 Team/Top 8-28
8.14.1 Team Configuration 8-28
8.14.2 Top configuration 8-35
8.14.3 MULAP Groups 8-43
8.14.3.1 **General MULAP Functionality** 8-46
8.15 Storing Procedures on Procedure Keys 8-54
8.16 Customer-Specific Display 8-58
8.17 IP Mobility 8-59
8.18 IP Mobility Extension (Emergency) 8-60
8.19 Live Call Record (Voice Recording; Recording Calls) 8-62
8.20 SIP Telephones 8-64
8.21 Prerequisites for ProCenter Applications 8-65
8.22 Signaling Encryption/Payload Encryption 8-67

9 Networking 9-1
9.1 Supported features, depending on networking protocol 9-3
9.2 Satellite CS Capability 9-12
9.3 SIP Networking 9-13
9.4 Cross Networking (E&M) 9-15
9.5 Numbering 9-16
9.6 Toll Restriction in CorNet-N 9-17
9.7 Call Detail Recording with Networking 9-19
9.8 Incoming Call 9-20
9.9 Consultation Hold/Transfer/Pickup 9-21
9.10 Automatic Recall 9-22
9.11 Call Waiting 9-23
9.12 Distinctive Ringing in the Network 9-24
9.13 Callback on Free/Busy 9-25
9.14 Station Number and Name Display 9-26
9.15 Call Forwarding With Rerouting 9-27
9.16 Path Replacement 9-29
9.17 Toggle 9-30
9.18 Conference 9-31
9.19 Central Attendant Console 9-32
9.20 Network-Wide Busy Signaling 9-33
9.21 Network-Wide Busy Signaling on optiClient Attendant 9-35

9.22 Sharing a Central Voice Mail Server 9-36
9.23 DISA Intern (Direct Inward System Access Internal) 9-37
9.24 System Speed Dialing With HiPath 5000 Feature Server 9-38
9.25 QSig 9-39
9.25.1 Basic Features 9-43
9.25.2 Central Attendant Position/Attendant Console 9-44
9.25.3 Intercept 9-44
9.25.4 Originator of the Intercept 9-44
9.25.5 Override 9-44
9.25.6 Automatic recall 9-45
9.25.7 Message Waiting Indication (MWI) 9-45
9.25.8 Central Cross-System Busy Signaling 9-45
9.25.9 Lock Code-Reset Code (V3.0 SMR-3 and later) 9-46
9.25.10 COS Changeover (V3.0 SMR-3 and later) 9-46

10 Features for Call Detail Recording 10-1
10.1 Silent Reversal at Start and End of Call 10-1
10.2 Advice of Charges at Station During Call (AOC-D) (not for U.S.) 10-2
10.3 Call Duration Display on Telephone 10-4
10.4 Call Detail Recording at Station (CDRS) (not for U.S.) 10-6
10.5 Call Detail Recording, Attendant (CDRA) (not for U.S.) 10-8
10.6 Call Detail Recording Per Trunk (CDRT) (not for U.S.) 10-10
10.7 Account Code (ACCT) 10-12
10.8 Call Detail Recording Central (CDRC) 10-16
10.9 Toll Fraud Monitoring 10-31
10.10 Printer Pipe Mode (V.24 [RS-232] Range Extension for Call Data) 10-33
10.11 Call-Charge Display With Currency (not for U.S.) 10-34

11 ISDN Features. 11-1
11.1 Euro-ISDN Features (not for U.S.) 11-1
11.1.1 Direct Inward Dialing (DID) 11-2
11.1.2 Multiple Subscriber Number (MSN) 11-3
11.1.3 Default Station Number Instead of Multiple Subscriber Number (MSN) 11-4
11.1.4 Calling Line Identification Presentation 11-5
11.1.5 Configurable CLIP 11-6
11.1.6 Calling Line Identification Restriction (CLIR) 11-7
11.1.7 Connected Line Identification Presentation (COLP) 11-8
11.1.8 Connected Line Identification Restriction (COLR) 11-9
11.1.9 Advice of Charge (AOC) 11-10
11.1.10 Call Forwarding (CF) 11-11
11.1.11 External Call Forwarding 11-13
11.1.12 Call Deflection (CD) 11-14
11.1.13 Subaddressing (SUB) 11-15
11.1.14 Malicious Call Identification (MCID) 11-16
11.1.15 Competition of Calls to Busy Subscribers (CCBS) 11-18

11.1.16 Call Hold (CH) 11-19
11.1.17 Three-Party Conference (3PTY) 11-20
11.1.18 Call Waiting (CW) 11-21
11.1.19 Telephone Portability (TP) 11-22
11.1.20 User to User Signaling (UUS1) 11-23
11.1.21 Explicit Call Transfer (ECT) 11-24
11.1.22 Point-to-Point Connection on the User Side 11-25
11.1.23 Programming National and International Codes for Outgoing Calls 11-26
11.1.24 Caller ID After Release (Police) 11-27
11.1.25 Call collect barring for ISDN trunks 11-28
11.2 U.S. ISDN (for U.S. Only) 11-29
11.2.1 PRI 11-30
11.2.2 BRI 11-35
11.3 U.S. ISDN Features (for U.S. Only) 11-38
11.3.1 Multi-Device Connections 11-38
11.3.2 Call-By-Call Service Selection 11-39
11.3.3 Dedicated (Pre-Provisioned) Service Selection 11-40
11.3.4 Transfer 11-41
11.3.5 Camp-On 11-42
11.3.6 Conference Call 11-43
11.3.7 Equal Access 11-44
11.3.8 Special Access Selection 11-45
11.3.9 Direct Inward Dialing (DID) 11-46
11.3.10 Multiple Subscriber Number (MSN) 11-47
11.3.11 Calling Line Identification Presentation 11-49
11.3.12 Call Forwarding (CF) 11-50
11.3.13 Call Hold (CH) 11-51
11.3.14 Three-Party Service 11-52
11.3.15 Call Waiting (CW) 11-53
11.3.16 Connected Line Identification Presentation and Restriction 11-54
11.3.17 Dialed Number Identification Service 11-55
11.3.18 B Channel Selection 11-56
11.3.19 Originating B Channel Selection Implementation 11-57
11.3.20 Terminating B Channel Selection 11-58
11.3.21 B Channel Cut-Through Operation Mode 11-59
11.3.22 Digital Keypad to DTMF Conversion on PRI 11-60
11.3.23 En-Bloc Dialing 11-61
11.3.24 Data Calls 11-62
11.3.25 Basic Electronic Key Telephone System 11-63
11.3.26 Call Appearance Call Handling Electronic Key Telephone System 11-64
11.3.27 Called and Calling Party Display 11-65
11.3.28 Connected Party Display 11-66
11.3.29 Message Waiting 11-67
11.3.30 Internal Voice Mail 11-68

Contents

12 Features via LAN 12-1
12.1 SNMP Functionality. 12-1
12.2 Administering HiPath 3000/HiPath 5000 via the LAN Interface 12-3
12.3 CSTA via IP. 12-4
12.4 Call Detail Recording Central (CDRC) via IP 12-6
12.4.1 TFTP Client in HiPath 3000/HiPath 5000. 12-6
12.4.2 TCP Client in HiPath 3000/HiPath 5000. 12-7
12.4.3 TFTP Server in HiPath 3000/HiPath 5000 12-7
12.5 Remote Administration of HiPath 3000 via PPP 12-8
12.6 Administration of Plus Products via PPP 12-10
12.7 Voice over IP. 12-13
12.8 I/O Service Extensions 12-15
12.8.1 CSTA Interface. 12-16

13 Small Remote Site Concept 13-1
13.1 Introduction 13-1
13.2 Activating the Feature 13-1
13.3 Operating Modes. 13-2
13.3.1 Normal Mode 13-2
13.3.2 Emergency Mode (IP Networking is Down) 13-3
13.3.3 Emergency Mode (Central HiPath 4000 System is Down). 13-4
13.3.4 Behavior of the Branch-Office IP Workpoint Clients in Emergency Mode 13-5
13.4 HiPath 3000 V5.0 Requirements. 13-6
13.4.1 Requirements for Emergency Mode. 13-7
13.4.2 Configuration of HiPath 3000 Stations for Emergency Mode. 13-8

14 HiPath ComScendo Service Resilience 14-1
14.1 Definition 14-1
14.2 HiPath ComScendo Service Resilience Scenarios Supported 14-4
14.2.1 HiPath 5000 PC with HiPath ComScendo Service –> HiPath 5000 RSM with HiPath ComScendo Service. 14-4
14.2.2 HiPath 5000 PC with HiPath ComScendo Service –> HiPath 3000 with HiPath ComScendo Service 14-5
14.2.3 HiPath 3000 with HiPath ComScendo Service –> HiPath 3000 with HiPath ComScendo Service. 14-6
14.3 Configuration Notes 14-7

Index Z-1

1 Description of Features

HiPath 3000/5000 V6.0, P31003-H3560-L403-1-7618, LM.060.085.050915

The following table offers an overview of the features described.
(The information on the HiPath 3250 and HiPath 3150 does not apply to the U.S.)

Subject
Features for All Traffic Types
Features for General Incoming Traffic
Features for General Outgoing Traffic
Features for General External Traffic
Features for Incoming External Traffic
Features for Outgoing External Traffic
Least Cost Routing (LCR) (Not for U.S.)
Least Cost Routing (for U.S. Only)
Features for Internal Traffic
Tenant Service
Other Features
Networking
Features for Call Detail Recording
Euro-ISDN Features (not for U.S.)
U.S. ISDN (for U.S. Only)
U.S. ISDN Features (for U.S. Only)
Features via LAN
Small Remote Site Concept
HiPath ComScendo Service Resilience

2 Features for All Traffic Types

2.1 Call hold

Definition

Users can place an active call on hold. Placing a call on hold means that the call stays connected, but in a waiting state, until the user retrieves it. After placing a call on hold, the user can either retrieve the held call or place another call on the same line.

A distinction is made between common hold and exclusive hold.

With common hold, any party can retrieve the held call; with exclusive hold, only the party who placed the call on hold can retrieve it.

The following describes other situations involving Hold states:

- **Call waiting**

  When a station is involved in a call and a second call is waiting to be answered, you can scroll to and select the prompt "Accept call waiting". This places the first caller on exclusive hold at your telephone and answers the incoming call. This feature is also known as answer hold. You can process the second call (transfer, park) or “Quit and Return” to the held party. The second incoming call is dropped.

- **Toggle and Automatic Hold** (refer to Section 2.3 for more details)

  When a station, using a trunk key or call key, is engaged in one call and another call is incoming on another key, you can automatically place the current call on exclusive hold and answer the incoming call by pressing the flashing key. You can then toggle between the two calls at will. While the user is talking on one line, the other line is put on consultation hold. An automatic recall is performed by the remote station for the last call processed when the you hang up.

  Alternatively, you can place your original caller on Common hold, by first pressing the Hold key before answering the incoming call. Anyone with an appearance of the Trunk key or Call key can take the call by pressing the slowly flashing key.

- **Consultation Hold and transfer** (refer to Section 2.4 and Section 2.5 for more details)

  When a station is engaged in a call (regardless of whether the call is on an outside line or not), you can place the current call on Consultation Hold to consult with another internal or external party. The held party is on exclusive hold on your telephone.

- **Hold and retrieve trunk**

  This allows the display user to place an outside trunk call on hold whether there is an appearance of the trunk or not on the telephone. By pressing the Hold/transfer key, the trunk is placed on exclusive hold and the display provides the information on the held trunk, which reads Line held on: xxx, where xxx is the trunk number. You can go on-hook. To retrieve the held line, press the Retrieve line button or dial the access code followed by the trunk number.

Related Topics

- Section 2.2, “Parking” on page 2-3
- Section 2.3, “Toggle/Connect” on page 2-5
- Section 2.6, “Conference” on page 2-9

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Trunk key, Retrieve key	You can retrieve a call that was placed on hold by pressing either a trunk key (when the LED is flashing slowly), by pressing the Retrieve key, or by entering a code from the Program/Service menu. The trunk to be seized must be suffix-dialed (with the exception of the trunk key).
Internal calls (for USA only)	To place an internal call on hold, users must either park the call or use an internal consult key.

2.2 Parking

Definition

With call parking, users can place both internal and external calls on hold. Parked calls can be answered from any telephone in the system.

Users can activate the call park feature only when they are on another call. Users must assign a virtual number (park slot 0 through 9) to the call that they want parked. They must then enter the slot number to receive the call.

If a parked call is not retrieved within a certain period of time (default is 160 seconds), the initiating party is recalled in accordance with the defined recall rule.

Related Topics

- Section 2.2, “Parking” on page 2-3
- Section 2.3, “Toggle/Connect” on page 2-5
- Section 2.6, “Conference” on page 2-9

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of calls parked simultaneously	Max. 10	Max. 10	Max. 10	Max. 10

Dependencies/Restrictions

Subject	Dependency/Restriction
Parking	You cannot park an undialed trunk.
Parking	You must answer a call before you can park it.
De-parking	From V3.0 SMR-6 upward, a parked call can be resumed (so-called "de-parking") even when another call is waiting. The function can be performed with code (#56 + parking position) or a key which has been programmed for this purpose.
Conference	You cannot park a conference call.

Subject	Dependency/Restriction
Call forwarding	In the case of a recall, a parked call does not follow call forwarding.
DTMF	DTMF mode is not deactivated when you activate the park feature. This applies both to the station that parked the call and to the parked station.
Occupied park slots	If the park slot selected for parking a call is already occupied, a tone sounds, and the number does not appear on the screen. Select another park slot.
Do Not Disturb	A station in DND can place a call in a park location; however, if the parked call recalls and no other destination has been identified in call management, the call is automatically disconnected after the recall timer expires.
Music on Hold (MOH)	Parked callers hear Music on Hold.
CorNet	An incoming call over a CorNet link can only be placed in a park location at the destination node. A call parked in one node cannot be retrieved from another node over the CorNet link.
DISA	The call parking feature cannot be activated from a DISA connection.
Network	Network-wide call parking is supported using a park server. The server parks and unparks calls, and administers the parked calls of all nodes.

2.3 Toggle/Connect

Definition

Toggle/Connect enables a user to toggle between two parties, placing one of the parties on hold. The toggle/connect feature can be used for internal and external calls.

The rules for consultation hold also apply to the active call. Users cannot toggle between conference calls.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call Hold	If you are on hold, you cannot use the toggle/connect feature.
DTMF	DTMF is not deactivated when you activate the toggle/connect feature.
Two incoming calls	If the second party is also an incoming call, the user can answer the incoming call by using the feature "Accept call waiting" (default access code is *55) and then toggle between the first and second call as explained above.
Trunk keys	Users with line keys (call keys, trunk keys) can toggle between one call and another by pressing the flashing line key for the other incoming call, and toggle between both by pressing one line key then the next. The lines are in exclusive hold. **Exception:** In the case of the General Call key appearances, users should always press the Hold button, followed by the Release button, before pressing another General Call key appearance. This places the first call on Common hold. Otherwise the call remains on Consultation Hold.
MOH	The held part hears MOH.

2.4 Transfer before answering

Definition

Users can transfer an internal or external call to another internal station before the called party answers. The other station can be in the same system or it can be in a networked system (CorNet-N, CorNet-NQ or QSig (even for IP)).

If the requested station is unavailable, the call will remain in a wait state until the line is free (Call waiting). Only two calls can be transferred to a busy station simultaneously.

The transfer destination display (subscriber C) can display the number of either subscriber A or B. Calls transferred to a station with active call forwarding are forwarded according to the forwarding mode set on the internal destination.

A call transferred to an external destination over an analog loop start trunk does not recall because the HiPath 3000/HiPath 5000 does not know the state of the final destination. In this case, a pseudo answer is provided.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
External transfer destination	You cannot place an unscreened transfer to an external destination.
Automatic recall	If a transferred call is not answered within a certain period of time, the system initiates a recall. The recall timer, Callback timeout for transfer before answering (default is 45 seconds) is started when the transferring station releases the call from the station. This timer also controls the length of time that a caller is camped on the destination station.
Call charges	Toll charges are assigned to the switching station until the call is picked up or released. After the destination station answers, the charges are assigned to it.

Subject	Dependency/Restriction
Call charges	If the destination is an external destination, the call charges are assigned to the transferring station as long as the destination answers the call.
DSS (Direct Station Selection)	Pressing a *DSS key* in talk state results in an immediate Consultation call with the party designated by the *DSS key*. In effect, it replaces the procedure *Consult + Destination*.
Do Not Disturb	Transferring a call to a station in Do not Disturb results in an immediate recall to the transferring station. If the transferring station is itself in a Do Not Disturb state, a *Recalling transferred call* overrides the DND function and rings the telephone.
Music on Hold	The called party hears MOH, if provided.
External destinations	An external call can only be transferred to another external destination (in the same system or in another node via CorNet) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1).
Busy stations	Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed - *Busy or Do Not Disturb*.

2.5 Screened Transfer

Definition

Users can use screened transfer by initiating a consultation call to an internal user (a third party) after answering a call. After the third party answers, the user can hang up the phone, transferring the call received.It is also possible to transfer an internal call to an external destination.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call charges	Toll charges are assigned to the switching station until the call is transferred. After the destination station answers, the charges are assigned to it.
External destination	In the case of an external destination, the transfer must be initiated.
DSS	Pressing a *DSS key* in talk state results in an immediate Consultation call with the party designated by the *DSS key*. In effect, it replaces the procedure *Consult + Destination*.
Music on Hold	The called party hears MOH, if provided.
External destinations	An external call can only be transferred to another external destination (in the same system or in another node via CorNet) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1).
Busy stations	Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed—*Busy or Do Not Disturb*.
Transfer to CF station	Calls transferred to a station that is call forwarded follow the forwarding mode set at the internal destination. The display on a display telephone indicates the final destination.

2.6 Conference

Definition

A user can include up to five stations in a conference call.
This is possible if the participants are distributed on different nodes. Users can also combine conferences on different nodes into one.

The initiating party is defined as the conference leader. He can individually disconnect stations from the conference or release the conference entirely as necessary. In addition, the user can also exit the conference without terminating it. If internal stations still remain in the conference, the new conference leader is the user who has been in the conference the longest. If only external stations remain in the conference and no backward release criterion is present (on loop-start trunks), a timer (Time until warning tone in main station interface transit con) is started. The default time is 5 minutes). The default time is 5 minutes. When this timer expires, the remaining stations receive a warning tone and the conference is disconnected after a default of 10 seconds. This timer (time from warning tone until release) is variable from 0 to 42 min.

Members of the conference call can leave the conference by going on-hook or by answering a call waiting. However, they must call the conference master to be included in the conference once again.

The status of the “Transit allowed via Hook-on“ station flag is evaluated in V5.0 SMR04 or later. The following table shows the different ways in which the conference can proceed if the conference leader hangs up. The "End conference", "Drop last conf. party" (for USA only) and "Leave conference" menu options offered during a conference are still independent of the station flag. The same also applies when convening (*3) and releasing (#3) a conference using a code number.

Stations			**Station flag "Transit allowed via Hook-on"**	
A = Conference initiator	**B**	**C (D ...)**	**selected**	**deselected**
Internal	Internal	Internal	Stations B and C (D ...) are connected together.[1]	The conference is ended and all connections are closed.
Internal	Internal	External		
Internal	External	External		

1 If internal stations still remain in the conference, the new conference leader is the user who has been in the conference the longest. If the new conference leader hangs up, the status of the latter’s "Transit allowed via Hook-on" flag determines how the conference proceeds.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Conferences per system	6	6	3	3
Stations per conference	5	5	5	5
External stations per conference	4	4	4	4

Dependencies/Restrictions

Subject	Dependency/Restriction
Conference	Internal users cannot participate in more than one conference in the system (except with: CorNet-N).
Analog telephones	Analog stations are not checked to see if they are voice devices.
Analog telephones	The following restrictions apply to HiPath 3350 and HiPath 3300: Analog stations can set up no more than a three-party conference. Up to four analog telephones can be passive participants in a conference.
Voice, data transmission	You can set up a conference between voice stations only.
Call charges	Toll charges are assigned to the party who set up the toll call. When a call is transferred or released, the toll charges are assigned to the remaining internal station from the moment the call is released.
Conference participants when external applications are connected via CSTA	CSTA Phase II places a limit on the length of CSTA messages. Conferences with more than three participants exceed this limit and can cause the connected applications to malfunction when at least one station is monitored by CSTA. This is why the option to expand conferences to include more than three participants is not offered in the menu and will be rejected if you try to invoke it with a code.
DISA	The conference feature cannot be invoked from an external DISA station.
Parking	Conference calls cannot be parked.

Subject	Dependency/Restriction
Silent monitoring	Silent Monitoring limits the maximum number of conferences. Maximum number of conferences possible in system = maximum number of simultaneous Silent Monitoring stations.
Conferences with IP workpoint clients	For this feature gateway channels of the HiPath HG1500 board(s) will be used. The number of workpoint clients (TDM and IP) involved in the conference determines the number of necessary gateway channels. Information concerning this topic can be found in the HiPath 3000/HiPath 5000 Service Manual.

2.7 Music on Hold (Internal or External Source)

Implementing features, see also Manager E Music on Hold

Definition

An integrated music source (hardware module) makes it possible to play music for waiting parties during switching operations.
As an alternative, you can use the following optional modules with HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300:

- EXMNA (connection option for an external music source) (for U.S. only)
- EXM (connection option for an external music source) (not for U.S)
- EXMR (connection option for an external music source)
- MPPI (with music component) (not for U.S)

All HiPath 3000 models allow you to define up to six (16 for V6.0 or later) MOH sources on analog interfaces for the six possible ITR groups. Devices other than Genius or Mozart must be connected to a 600 Ohm transformer.

No Music On Hold

If you choose this option, Music on Hold is completely inactive. If an external caller is blind transferred you will hear ring back with this option.

The EXMNA card limits the level at which MOH can be heard over outside lines and is therefore FCC compliant without external limiters.

Callers hear MOH if in Consultation Hold state, Parking state, and in transfer state if configured. Queued callers in an UCD environment can also hear MOH if so configured.

MOH can be configured in one of three ways:

1. No Music on Hold: The held party hears nothing (silence).
2. MOH with ring tone: The held party will first hear MOH during the Consultation process. When a call is transferred to the destination, the MOH is replaced by ringback tone.
3. MOH without Ring Tone: The held party will hear MOH until the called party answers the call.

HiPath Xpressions Compact V2.0-based MOH for HiPath 33xx, 35xx and 37xx

HiPath 3000 V4.0 SMR 7 or later supports the HiPath Xpressions Compact V2.0 Music On Hold feature.

With HiPath 3000/5000 V6.0 and later there are 16 ITR groups (in Version 5.0 there were only 6). However, only a further 6 MOH sources can be assigned to the 16 ITR groups from the integrated voicemail. The MOH ports are no longer available for voicemail operation and should be removed from the voicemail port hunt group.

Each MOH channel features an MOH mailbox. Callers in the queue hear mailbox greetings as MOH. Each MOH mailbox has four greetings which can be individually customized. These are integrated in the MOH and are always played as an endless loop.

Each MOH mailbox has a default announcement. You can record individual MOH by simply changing the MOH mailbox greetings via HiPath 3000 Manager E/C. The music or announcements to be played should be available in PCM WAV format, 8kHz, 16 bit, mono.

The MOH function of an available HiPath Xpressions Compact board can be remotely configured.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
HW requirements for TDM	free analog subs. ports			
	SLMA, SLMA8, TMEW2	SLA16, SLA8/16/24N, TIEL	EXM, EXMR, EXMNA, MPPI	EXM, EXMR, EXMNA, MPPI
HW requirements for IP	free MOH channels			
	STMI2	HXGM2, HXGM3	HXGS2, HXGS3, HXGSR2, HXGR3	HXGS2, HXGS3, HXGSR2, HXGR3
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
EXMNA	EXMNA is used only in the U.S.
EXM, EXMR, EXMNA, MPPI	Connecting the EXM, EXMR, EXMNA or MPPI board automatically switches the system over to the external music source.
MOH	HiPath 3250 provides limited internal MOH.
MOH source	You cannot use the logical port “0” as an MOH source.
MOH source at analog ports	If the MOH source is turned on (loop active) you need to disconnect and then reconnect it (interrupting the loop) after configuring the analog port.
MOH for IP workpoint clients	For this feature, MOH channels (= number of MOH data streams for IP workpoint clients) of the HiPath HG1500 board(s) will be provided. For load limitation, the maximum number of possible MOH data streams per HiPath HG1500 board is limited to 10 (i.e. up to 10 IP workpoint clients can simultaneously listen to MOH).

2.8 Announcements

Implementing features, see also Manager E Announcements

Definition

For universal call distribution (UCD), announcement before answering, and DTMF direct inward dialing (DID), users can connect announcement equipment. An announcement source replaces music on hold (MOH) in certain situations such as during hold or while a station is busy or being transferred.

Announcement devices can be connected to analog interfaces, or can be connected using E&M in the HiPath 3750 or HiPath 3700 system. Start/stop control can be implemented using relays and sensors or E&M. Up to 32 stations can be connected to an announcement device.

Both interfaces provide sequenced messages (as opposed to barge-in); however, the E&M interface can advise the announcement device to return to start when the queue is empty. With the SLA interface method, the announcement device must reach the end of its message before returning to start. This can be critical if the message is lengthy.

The following types of announcement are available:

- Section 3.1.12.6, “Recorded Announcement/Music on Hold (MOH) with UCD”
- Section 4.2.10, “Announcement Before Answering”
- Section 4.2.9, “DTMF DID”
- Section 6.9, “Message Texts / Mailboxes / Message Waiting”

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements for TDM	Free analog subs. ports (+ REALS for Start/Stop) /TMEW2	Free analog subs. ports (+ REAL for Start/Stop) /TIEL	Free analog subs. ports (+ STRB/STRBR for Start/ Stop)	
Hardware requirements for IP	Free MOH channels			
	STMI2	HXGM2, HXGM3	HXGS2, HXGS3, HXGSR2, HXGR3	HXGS2, HXGS3, HXGSR2, HXGR3

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Announcement devices	16	16	4	1
Simultaneous announcements	32	32	32	32

Dependencies/Restrictions

Subject	Dependency/Restriction
MOH for IP workpoint clients	For this feature, MOH channels (= number of MOH data streams for IP workpoint clients) of the HiPath HG1500 board(s) will be provided. For load limitation, the maximum number of possible MOH data streams per HiPath HG1500 board is limited to 10 (i.e. up to 10 IP workpoint clients can simultaneously listen to MOH).

HiPath Xpressions Compact V2.0-based announcements for HiPath 33xx, 35xx and 37xx

HiPath 3000 V5.0 or later supports HiPath Xpressions Compact V2.0 announcements for UCD and announcement before answering.

An Xpressions Compact-based announcement replaces music on hold (MOH) in certain situations such as during hold or while a station is busy or being transferred. Up to 32 stations can be connected in parallel to the HiPath Xpressions Compact-based announcement.

Xpressions Compact supports announcements in order of arrival (announcements are played once completely) and continuous announcements (Music On Hold).

HiPath Xpressions Compact-based announcements are configured according to port. The announcement ports are licensed separately. The announcement ports are no longer available for voicemail operation and should be removed from the voicemail port hunt group.

Each announcement port features an announcement mailbox. Callers who are transferred to an announcement port hear the first greeting of an announcement mailbox.

The first greeting of an announcement mailbox can be easily customized via HiPath 3000 Manager E/C. The music or announcements to be played should be available in PCM WAV format, 8kHz, 16 bit, mono.

The announcement function of an available HiPath Xpressions Compact board can be remotely configured.

The general "Model-Dependent Data" also applies to HiPath Xpressions Compact-based announcements (see above).

2.9 Consultation Hold

Definition

This feature allows users to place a new internal or external call on hold and consult with an existing caller on the same line by placing the existing caller on hold.
The consultation call ends when the user retrieves the held call. If the user hangs up instead of retrieving the held call, the held call is transferred or recalled.

If users place an external call on hold and place another external consultation call, they must use the telephone transfer feature to connect the two calls.

Analog telephones can connect external calls to external stations using the conference feature.

Related Topics

- Section 2.4, “Transfer before answering” on page 2-6
- Section 2.5, “Screened Transfer” on page 2-8
- Section 2.6, “Conference” on page 2-9

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Number redial	You can use the number redial feature when you are in a consultation call.
Do Not Disturb	It is not possible to set up a consultation call to a busy subscriber who has activated do not disturb.
DTMF mode	Initiating a consultation call will deactivate DTMF mode if it is active; it is reactivated when a consultation call is terminated.
"Internal Consultation Hold" key	This key function is practical in communication systems with simplified dialing (prime line) for initiating internal consultation hold with a click of a key.

2.10 Automatic recall

Implementing features, see also Manager E Atomatic recall

Definition

A held call that is not answered or a call that was not switched successfully is signaled at the initiating station as a recall. A display telephone at the initial caller's location can display the number of either the switched internal or external station or the number of the destination.

An automatic recall is always carried out if:

- A call was parked for a certain period or was placed on common hold and was not answered. The recall occurs when the hold/park timer expires (recall a parked connection).
- An unscreened transfer was set for a party who did not answer the call within a certain period (recall a transferred/switched trunk).
- An unscreened transfer was placed to a station and the destination did not exist, was busy with a second call, the telephone was defective (in the case of digital telephones) or the transfer type was not allowed (transfer external call to external destination). An immediate recall is carried out in these cases.

In V1.2 SMR-H recall can be picked up by the initiating user as well as other users. This is only possible if the user picking up the recall is in the same call pickup group as the initiating station. The system-wide "PU on recall" flag must be set.

Timer Relationship

- Call Park Recall and Call Transfer Recall have separate timers.
- The *Park timeout and cancellation of hold* timer is started when a call is parked in a park location. When the time expires, the call recalls the originator. Default time is 180 seconds. If the originator is busy or in the Program/Service mode when the timer expires, the recalling party camps on the originator, until the current call is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expires.
- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.
- The *Callback timeout for transfer before answering* timer is started when a caller is transferred to another destination by an internal user. When the time expires, the call recalls the originator. Default time is 45 seconds. If the originator is busy or in the Program/Service mode when the timer expires, the recalling party is camped-on to the originator, until the current conversation is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expires.

- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.
- When a call recalls the originator, the *Intercept timeout for recall* timer is started. The call will ring at the originator for the length of this timer. When the time expires the call is routed to the configured intercept position. Default is 30 seconds.
- When an unanswered call is routed to the intercept position, a final timer, *Timeout before recall to ATT is activated*, is started. The call will ring at the intercept position for the length of this timer. When the time expires, the call is released from the system. Default time is 60 seconds.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
PU on recall	Function is also guaranteed if the station making the recall is a member of the same call pickup group.

2.11 Setting the Dialing Method for Analog Stations

Implementing features, see also Manager E Setting the Dialing Method for Analog Stations

Definition

After the system boots, all analog station ports are set to DTMF dialing. If users need to change an analog station port to dial pulsing, they can use Manager T or HiPath 3000 Manager E. Users do not need to reset the system after changing the dialing method. The new dialing method is functional immediately.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Dialing method	If a dial pulsing signal is detected, the code receiver remains active so toll restrictions are not circumvented.

2.12 optiPoint Attendant

Implementing features, see also Manager E OptiPoint Attendant

Definition

Users can use the HiPath 3000/HiPath 5000 system to perform switching services with specially configured telephones. The optiPoint Attendant telephone simultaneously serves as an intercept position and an attendant console (AC). All calls are routed to the AC if direct inward dialing is not available or if no station can be reached via the call allocation algorithms in call management (intercept). The operator then redirects incoming calls to the stations selected.

Users can also configure a PC as the attendant console (PC AC). This specially configured PC is known as optiClient Attendant and is described in detail in the Service Manual. Additional information concerning requirements, layout and assignment of function keys can be found in the HiPath 3000/HiPath 5000 Service Manual.

Individual Intercept positions can be configured for day operation and another for night operation. Up to four optiPoint key modules can be connected to the optiPoint Attendant.

In general, external calls are directed to Call keys whereas internal calls appear on DSS/Repdial keys on the optiPoint key modules.

Intercept and attendant positions can form Hunt Groups. A hunt group where all members are busy, is not intercepted to the intercept position. The waiting calls remain in the queue.

Calls can be configured system-wide to be intercepted in the following conditions:

- Ring No answer, Busy, Invalid number dialed, Incomplete number, or unanswered recalls and when an attempt is made to dial from specific stations which have activated "Lock Code".
- In the case of Ring No Answer, the system first checks the Call Management tables for further configured destinations. If there are none, the call is then diverted to the intercept position.

CorNet

CorNet calls can be internal or external depending on their source. If the calling party is an internal station in a remote node, the call is flagged as internal. If the call is from a trunk in the remote node, the call is flagged as external.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital subscriber port	Digital subscriber port		
General requirements	optiPoint 500 basic, standard, advance, optiPoint 600 office, optiset E advance plus/comfort, memory			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Overflow	You can configure numeric and time overflow to a programmable overflow destination. Up to six optiset E or optiPoint telephones can be configured with overflow display.
Undialed trunk	You can switch an undialed trunk.
Busy external line	You can selectively release busy external lines.
Second number	You can also reach the AC under a second station number (default 9, USA/GBR 0).

2.13 Override

Implementing features, see also Manager E Override

Definition

Authorized users and the current intercept position (day or night) can use a code or key to override a call in progress at an internal station.
The participating stations are notified of the busy override by an alerting tone and a screen display.

The feature can be invoked during the busy signal or during the camp on state.

During an override condition,

- if the called party goes on-hook, all parties are released.
- if the party which was connected to the called party goes on-hook, the overridden and overriding parties remain connected.
- if the overriding party goes on-hook first, the original conversation can continue and the conference bridge is removed.
- If the called party had activated DND, the conversation will nevertheless be overridden. However, a station authorized to use the Busy Override feature, cannot override a station with DND active and in an idle state.

It is possible to override an executive station in a MULAP. The attendant console always has override authorization and other stations can be assigned override authorization. Override is also possible on stations with call waiting rejection.

CorNet-N

Override cannot be invoked over a CorNet-N link.

CorNet-NQ

A subscriber with override permission can override to a call in another node via CorNet-NQ.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
No override possible	Override is not possible if the called station is currently dialing. Likewise it is not possible to override one of the following stations (voice channel signaling security): • Analog station with message waiting LED • Fax connection • Modem connection • PhoneMail (5-digit and 6-digit) • Door opener • Answer machine • External MOH • Loudspeaker
Hunt group	Busy override is not possible if all stations are busy when a group or hunt group is called.
S_0 station	It is not possible to override an S_0 station.
Attendant console	The busy override feature is activated by default and cannot be de-activated.
Override security	There are no parameters that can provide override security for individual stations.

2.14 Overload Indication

Implementing features, see also Manager E Overload Indication

Definition

Users can activate an overload indicator (attendant console) for a fixed station (first station port in the system). When the user presses the key, the waiting calls are displayed (key LED). The following signaling types are possible:

- Flashing: Waiting call and busy AC.
- Flickering: Waiting call was not answered within 30 seconds; there are more calls than can be processed by the attendant consoles.
- Off: The AC is not overloaded.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware require-ments	Digital subscriber port			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Overload indication	An LED that is already flickering is not reset to flashing.

2.15 Shared Transfer Switch (For Germany Only)

Definition

A shared transfer switch allows an analog trunk connection to be used for two stations. The switch divides the signal into positive and negative half-waves and assigns each to a station. The system can be connected to such a switch. The network provider (such as Deutsche Telekom AG in Germany) installs the shared transfer switch in front of theHiPath 3000 or the HiPath 5000 gateway.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Shared transfer switch	This feature is for Germany only.

2.16 Entry Voice Mail EVM

Definition

Entry Voice Mail is a voice mail solution for HiPath.

You can control all the features available to you via the optiPoint telephone keys or any other telephone with tone dialing (DTMF). Entry Voice Mail supports you with context-sensitive prompts.

Entry Voice Mail is configured/activated by the assigned operative via a PC administration program.

Function Overview

- 24 standard mailboxes, up to four of which are
  4 attendant mailboxes/Auto attendant mailboxes (automatic call acceptance, greeting with switching option, day/night service, speed dialing).
- Option for automatic mailbox configuration
  User-controlled mailbox configuration
- Announcement/music before answering
- Two different greetings
  The greetings used can be selected manually or according to the time of day for day/night service.
- Context-sensitive prompting
  Announcements inform the user of the possible options available in the current menu.
- Two parallel switching and answering machine options are possible (2 ports)
- 120 minutes voice recording capacity
  - The recording quality for greetings is adjustable.
    You can choose from the following three options:
    - Greetings and messages optimized for storage
    - Greetings in HiQuality; messages optimized for storage
    - Greetings and messages in HiQuality

    120-minute voice recording capacity can only be achieved with the first setting (greetings and messages optimized for storage).
- Maximum recording time of a voice message per mailbox = 5 minutes, can be configured in increments of 1 to 5 minutes, default value = 2 minutes
- Date and time stamp for each message

The number (n) of messages recorded in EVM is shown on the optiPoint display:
“n new messages”

- Forwarding of fax calls (automatic fax tone recognition) to a preconfigured fax destination
- Playback of individual announcements
(depending on your HiPath system software version)

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	–	–	**x**	**x**
Hardware requirements	–	–	CBCC (S30810-Q2935-A301) or CBRC (S30810-Q2935-Z301) and EVM	
Software requirements	–	–	V4.0 or later	V4.0 or later

The EVM submodule enables integrated voice mail in
HiPath 3300, HiPath 3350, HiPath 3500, and HiPath 3550.
The central controllers S30810-Q2935-A301 (CBCC) or S30810-Q2935-Z301 (CBRC) must be used for this.

Dependencies/Restrictions

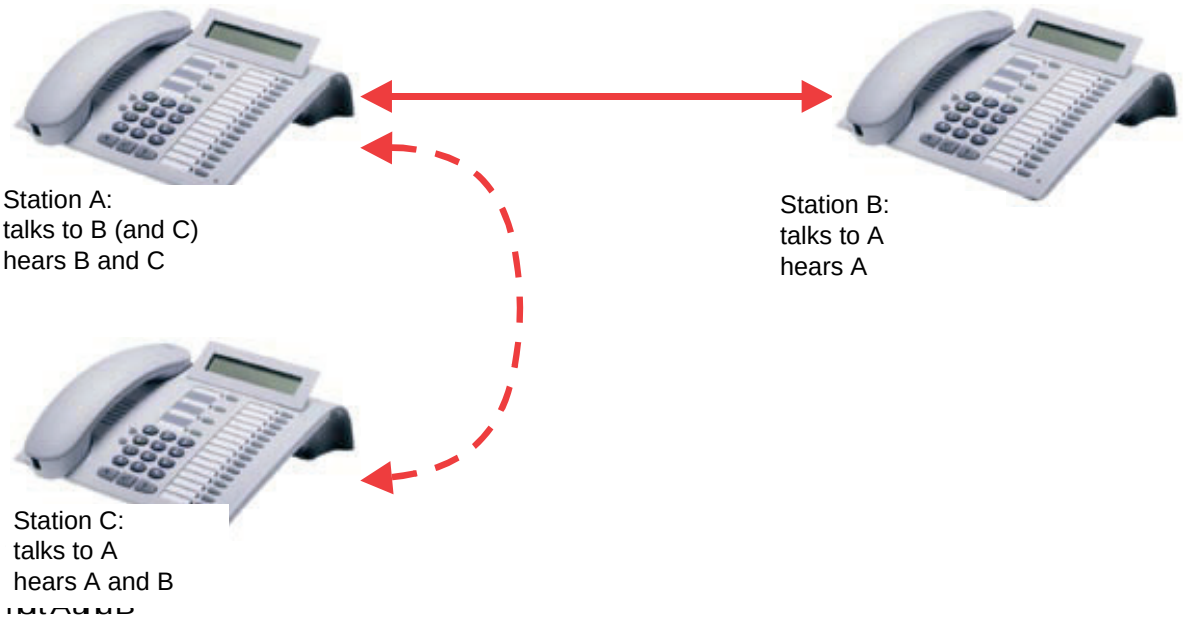
Subject	Dependency/Restriction
Group mailboxes	For groups and MULAPs, the Entry Voice Mail (EVM) information is only displayed for the first station. In HiPath Xpressions Compact the feature functions without restrictions.

2.17 Whisper/Off Hook Announcement

Definition

The "Whisper/Off Hook Announcement" feature allows stations (station C in the illustration) to monitor an existing call between two stations (stations A and B in the illustration), and to pass on information to one of these stations. In other words, the connection is switched in such a way that only station A hears station C, and station B only hears station A.

Although there is no connection between station B and station C, user B may be able to hear the muffled tones of what user C is saying because of feedback on station A.



The feature is activated by station C by dialing a code. There is a partially assigned key on the telephone (only the code is assigned to the key, the phone number must be dialed). A new menu item will be incorporated into the Service menu, the Idle/Call menu will remain unchanged.

The option for activating the feature is linked to a new, user-specific class of service. A second class of service can be used to protect station A from Whisper/Off Hook Announcement.

The feature is deactivated by the activating station (station C) or by modifying the features, but NOT through a separate code.

Restrictions

- If at least one station in the original call (station A or B) is not a TDM station, the HiPath switching network is not yet involved at the time of activation and the switchover cannot be performed without a brief interruption in the call between A and B.
- Stations A and C must be in the same node.
- The feature can only be activated by station C from the idle/ready state.
- Only telephones with a display that can be controlled by the system (OptiSet, OptiPoint, OptiClient) can function as destination telephones for Whisper/Off Hook Announcement (station A).
  CMI is not supported in HiPath 4000.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

Dependencies/Restrictions

Just as with the feature Silent Monitoring, Whisper/Off Hook Announcement is only permitted if the call between station A and station B is a simple connection between two stations. The Whisper/Off Hook Announcement feature cannot be used for consultation calls or conference calls.

If the "Whisper/Off Hook Announcement" feature is active and station A or station B initiate another call-related feature, the whisper feature will be deactivated. The table below provides further information on interaction with particular features:

Feature	Station A		Station B		Station C	
	Possible	**Action**	**Possible**	**Action**	**Possible**	**Action**
Consultation Hold, Call Hold, Park, Common Hold	Yes	Deactivate Whisper	Yes	Deactivate Whisper	No [1]	Negative acknowledgement
Transfer	--	--	--	--	--	--
Conference	--	--	--	--	--	--
Call Waiting	Yes	--	Yes	--	Yes	--
Call Waiting (answer)	Yes	Deactivate Whisper	Yes	Deactivate Whisper	Yes	Negative acknowledgement
Override	No [2]	--	No[2]	--	No[2]	--
DTMF Transfer	Yes	--	Yes	--	No	--
FEAT counter	--	--	--	--	--	--
Associated Services	--	--	--	--	--	--
DISA/DISI	--	--	--	--	--	--

1 Consultation Hold should not be offered to station C in the menu. The keystroke that would normally initiate Consultation Hold is acknowledged with "not possible".

2 Prevent as soon as PROGRESS message is initiated ("Override Possible" should no longer be sent)

3 Features for General Traffic

3.1 Features for General Incoming Traffic

3.1.1 Distinctive Ringing

Implementing features, see also Manager E Distinctive Ringing

Definition

Distinctive tones indicate different call types. This enables the user to distinguish between incoming internal and incoming external calls. In ISDN systems, acoustic information is secondary to displays on the screen because different features can have the same ring signaling.

In V6.0 and later, call signaling that varies from caller to caller is also possible.

Consequently, in addition to external call signaling, it is also possible to configure internal call signaling for each station. Every internal call made by this station (calling station) is signaled by the ring type on station B (called station). The ring frequency at the destination depends on the caller's ring frequency. This is implemented by allocating a specific ring frequency to a station via Manager E. As with the existing field for external calls ("Call signaling"), the new internal call frequencies are controlled by Manager E (and not by Manager C).

The different ring frequencies are applied to the called stations in the case of station type HFA (U_{P0E} or IP). Analog stations are always called using frequency 1.

CMI handsets

Only handsets with ring melodies are supported. The caller's call number (Calling Number ID) is sent to the Gigaset so that the melody selection function of the internal phonebook (VIP) is supported; this depends on whether this feature is supported by the relevant caller.

The different internal ring frequencies only function between end points that are registered in the same system or node.

Seven additional ring frequencies will be added to the existing ring frequency. These frequencies will have different default values, whereby each station is displayed with frequency 1 by default.

Depending on the telephone, three different types of acoustic signaling are possible:

- for optiset E and optiPoint 500 telephones (also applies to IP telephones on HiPath 5000):
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = External call CO 2 (for example, triple ring)
  - Ring type 3 = External call CO 3 (for example, short/long/short)

- for analog telephones (only for Germany):
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = Recall
  - Ring type 3 = Door bell ring
- for analog telephones (not for Germany):
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = External call CO (for example, double ring)
  - Ring type 3 = External call CO (for example, double ring)

The ring cadences depend on the country.

For U.S. only: External cadences for optiset E telephones

Manager T	HiPath 3000 Manager E	External call ring cadence
Type 1	External Call	• 125 ms ON/250 ms OFF, • 125 ms ON/1500 ms OFF
Type 2	External Call CO 2	• 200 ms ON/100 ms OFF • 200 ms ON/100 ms OFF • 200 ms ON/1700 ms OFF
Type 3	External Call CO 3	• 100 ms ON/100 ms OFF • 200 ms ON/100 ms OFF • 100 ms ON/1900 ms OFF

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Country specifics	Ring signals are country-specific and determined by the approval authorities.

3.1.2 Call Waiting Tone/Call Waiting

Implementing features, see also Manager E Call Waiting Tone/Call Waiting

Definition

If a caller reaches a busy extension, a call waiting tone sounds after 5 s to let the called party know that a call is waiting (camp-on). The called party then has the option of answering the call without ending the call in progress. If the called party has a display telephone, the display also indicates that the camped-on call is waiting.

An immediate call waiting tone is possible at a busy extension for V1.2 and later. The appropriate flag must be set for the port. The calling party hears the ring tone immediately instead of the busy tone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of external waiting calls per station	16	16	16	16
Number of internal waiting calls per station	16	16	16	16

Dependencies/Restrictions

Subject	Dependency/Restriction
Call waiting rejection	If a station has activated call waiting rejection, a caller cannot camp on.
CorNet	Call waiting in a networked system depends on whether or not the system flag is set: • if the system flag is not set (default setting), call waiting indication occurs immediately. • if the system flag is set, call waiting indication only occurs if the caller is an attendant console. All others subscribers do not camp on in the network.

Subject	Dependency/Restriction
CorNet-NQ	Call waiting in a networked system with CorNet-NQ occurs with a five-second delay, as is the case with internal calls. No flags are set in this case.
Group call	If one or more stations in a group call are free, the call will be offered to them. The other group members are not signaled. If all stations are busy, all of them receive a call waiting signal.
Speaker call	Speaker calls to busy stations are not possible.
Automatic recall	Recalls of low-priority external calls that cannot be signaled are intercepted. Displaced internal calls are released.
Call waiting tone	Users can deactivate the call waiting tone for external calls using a procedure or Manager E. This setting does not affect signaling on the display.
Call waiting tone on/off	Individual stations can enable/disable the tone at their station. Default is: Tone On.
Call waiting rejection on	This station flag prevents any type of call waiting tone to be injected in the conversation. This flag is also called Data Line Security in the HiPath 3000 Manager E. When set, this flag will also prevent this station from being overridden. The calling station will only hear the busy tone.

3.1.3 Call Management (CM)

Implementing features, see also Manager E Call Management (CM)

Definition

Call Management is a call management system. This system determines how incoming calls are handled with regard to line type and Day/Night service. Call management consists of four blocks:

Block 1: Two call allocation tables exist for calls on analog or digital (ISDN) trunks without a direct inward dialing (DID) option. One call allocation table is evaluated during day service, and the other table during night service. For each trunk, these tables contain a reference to further day and night lists. Call management goes directly to these lists when a direct inward dialing (DID) call arrives. In the default setting, DID calls on all trunks that lead to an intercept are signaled at the day or night intercept position. Intercept criteria can also be entered in these tables.

Block 2: A total of three lists exist for day service, internal calls, and night answer. These lists contain references to one of the possible call destination lists.

Block 3: The call destination lists form a seven-column table. A row of this table is also referred to as a CM element. The first four columns contain procedures. The stations and groups entered in these columns are called consecutively depending on the call forwarding - no answer (CFNA) time.

The fifth column contains an entry that determines the time until CFNA occurs.

The sixth column contains an entry indicating the night bell type and the telephone that should also be called.

The seventh column defines when the night bell entered in column six should be called (either immediately or after the first CFNA time entered in column five).

Block 4: If group numbers have been entered in the call destination lists, the last call management table handles any additional allocation. This table is provided for hunt groups (linear and cyclical) and group calls.

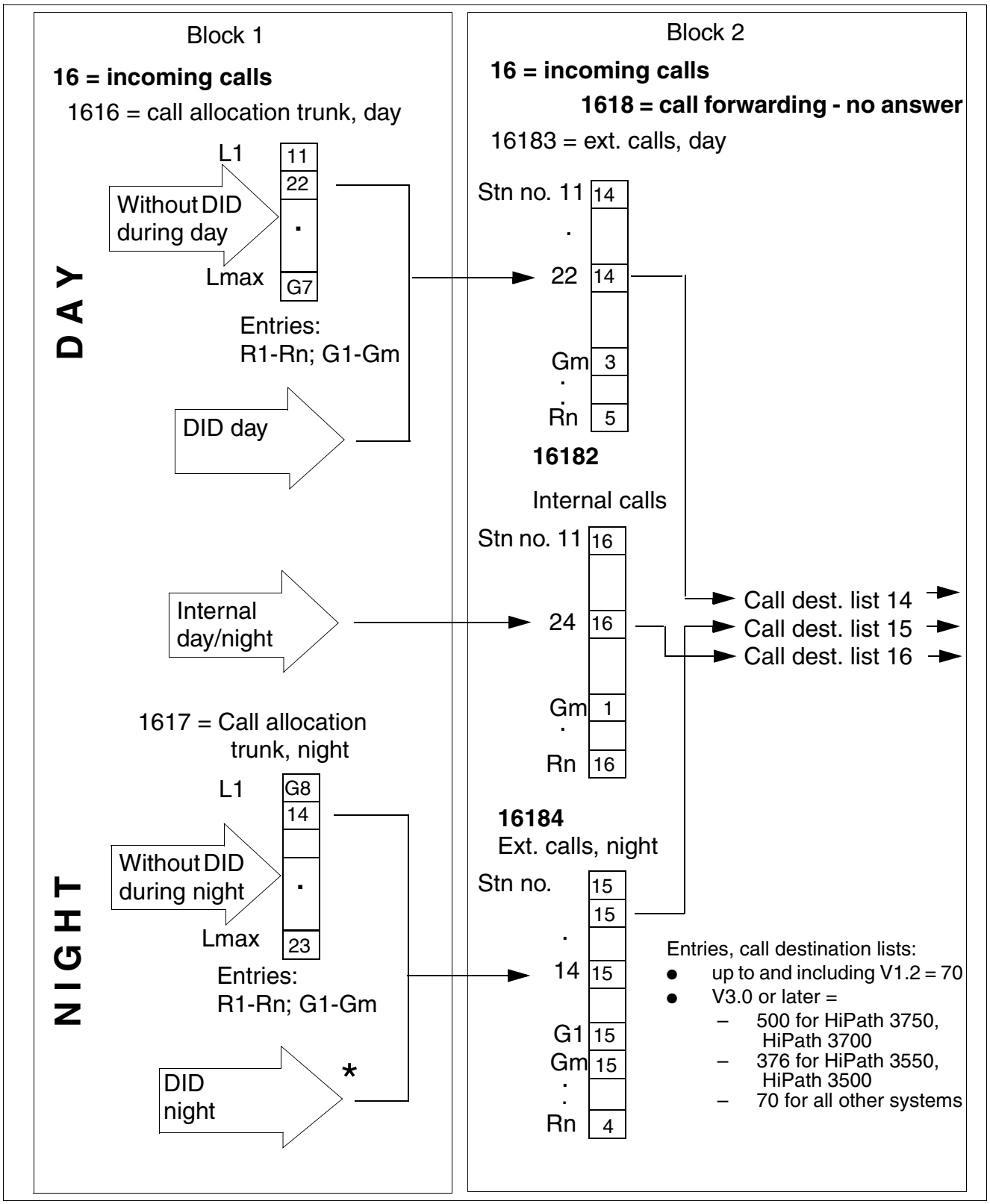


Figure 3-1 Call Management Relationships (Blocks 1 and 2)

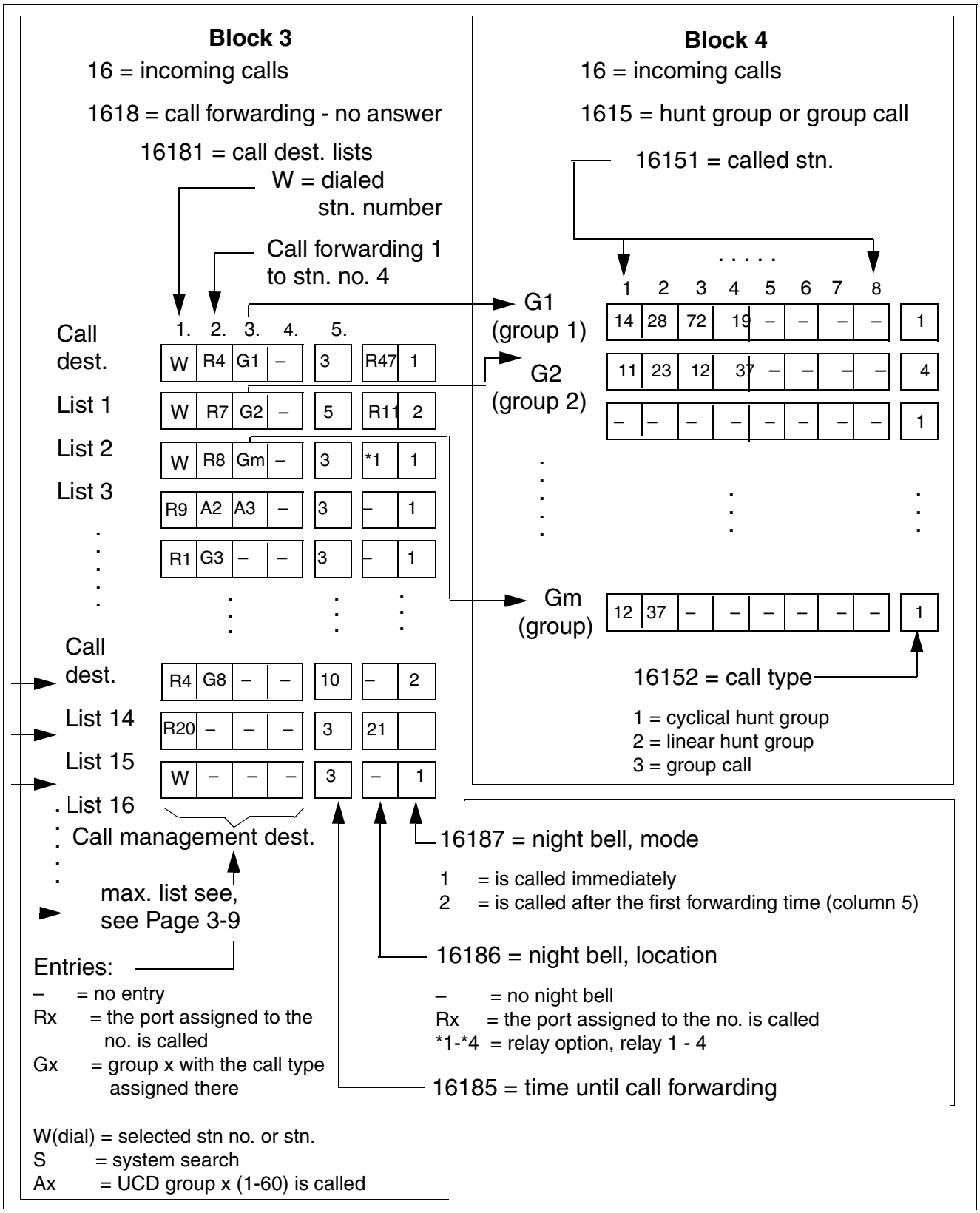

Block 3
16 = incoming calls
1618 = call forwarding - no answer
16181 = call dest. lists
W = dialed stn. number
Call forwarding 1 to stn. no. 4
Call dest. List 1
List 2
List 3
List 14
List 15
List 16
Call management dest.
max. list see, see Page 3-9
Entries:
– = no entry
Rx = the port assigned to the no. is called
Gx = group x with the call type assigned there
W(dial) = selected stn no. or stn.
S = system search
Ax = UCD group x (1-60) is called
Block 4
16 = incoming calls
1615 = hunt group or group call
16151 = called stn.
G1 (group 1)
G2 (group 2)
Gm (group)
16152 = call type
1 = cyclical hunt group
2 = linear hunt group
3 = group call
16187 = night bell, mode
1 = is called immediately
2 = is called after the first forwarding time (column 5)
16186 = night bell, location
– = no night bell
Rx = the port assigned to the no. is called
*1-*4 = relay option, relay 1 - 4
16185 = time until call forwarding

Figure 3-2 Call Management Relationships (Blocks 3 and 4)

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of call destination lists up to and including V1.2	70			
Number of call destination lists for V3.0/V4.0 and later	500	500	376	70
Number of UCD groups	60	60	60	10

Dependencies/Restrictions

Subject	Dependency/Restriction
Call Management	CM does not treat a station as a call forwarding - no answer destination if its telephone has failed, if the user has activated do not disturb or has activated data protection and is busy, or if the user does not have trunk access (for external calls).
Call Management	If CM cannot find a station to which it can switch the call, it follows the intercept criteria.
Group/hunt group	If no stations in a group or hunt group are available, the call camps on at all telephones in the group.
Entrance telephone	Stations that cannot be reached via direct inward dialing (such as entrance telephones) should not be entered as stations to which calls are allocated; otherwise, an intercept will occur.
DTMF DID	With DTMF DID/DISA, an analog call can be released before the call forwarding - no answer process has concluded because the system uses fixed timers to prevent the trunks from freezing up.
Night bell	If a CM element does not have any entries in the first four columns, the system immediately calls the night bell regardless of the entry in the seventh column.
Call Management	If a system search is the first item in a CM element, the system ignores subsequent entries in this CM element.

Subject	Dependency/Restriction
Call Management	If a call can no longer be signaled in the system (due to an AC failure, for example), the system sends a busy signal or releases the call. Solution: Make an entry in the second column of the AC's call destination list.
System search	The system searches all stations and: Does not follow call forwarding Skips executive stations Routes only one call to each station Ignores call ringing groups
Call diversion	If a destination station entered in a destination number list has activated the call diversion function (*1n) for another station or a hunt group, Call Management still analyzes the destination number list of the original destination station (when the call is not answered) and NOT the destination number list of the diversion destination.

3.1.4 Call Forwarding—No Answer (CFNA) With a Timeout

Implementing features, see also Manager E Call Forwarding - No Answer (CFNA) With a Timeout

Definition

With this feature, calls arriving at a specific destination are forwarded if they are not answered within a specified period.

Call forwarding—no answer in conjunction with direct inward dialing, call allocation, and internal calls is carried out according to station numbers in call management.

Each call signaled at a station is also signaled at stations in the call ringing group; in other words, the call is forwarded to these stations as well.

This type of forwarding is also referred as *Fixed call forwarding—no answer* in that, once the destination has been set in the database, it cannot be activated/deactivated or changed by the end user. The destination can only be changed by maintenance personnel via Manager T or HiPath 3000 Manager E. Call Forwarding—no answer in conjunction with Direct inward dialing, Call allocation, and Internal calls is carried out according to station numbers in Call Management. Up to three Call forwarding-no answer destinations can be configured in the Call Management tables for the stations. In other words, if the initial station has assigned a *ring no answer* destination, the incoming call forwards to that assigned destination. If in turn this second destination does not answer, Call Management searches for a further destination to route the call.

Call forwarding—no answer chaining is only possible between destinations in the CM tables. That is, if a destination has Call Forwarding (CF) configured on the telephone, the incoming call forwards to this destination, but will NOT forward to a further destination even if that destination is itself forwarded.

A call forward destination can be a voice mail hunt group.

If the last destination in CM is busy, the incoming call does not progress beyond the ringing telephone until the busy telephone becomes idle. At which time, the call is forwarded to the now idle telephone.

The external and internal call ring cadences are carried over from one destination to the other.

Incoming Caller ID (PRI and BRI) is also carried over from one destination to the next. Exception: CF external calls: in this case, caller ID is not displayed, only the original CF number called (also displays subscribers A and B in version 4.0 or later).

Each call signaled at a station is also signaled at stations in the call ringing group. That is, the calls are forwarded to these stations as well.

CorNet-N

Calls can be forwarded over a CorNet link.

Related Topic

Section 3.1.3, “Call Management (CM)” on page 3-6

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of CF destinations per station no.	3	3	3	3

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding - no answer	If the call forwarding destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.
Hunting to external call forwarding destination	The system-wide flag controls the call forwarding - no answer if an external CF has been activated within a call destination list. If the flag is not set, the call forwarding - no answer ends at the external CF destination. If the flag is set, the call forwarding - no answer continues out of the external CF destination to the station entered in the call destination list. Note: For CF on loop start trunks, the flag functions only if you have entered a call cycle for the call forwarding - no answer.
Ext. call forwarding	You can specify whether the system follows an external call forwarding procedure that a station has programmed in the call forwarding table.
External call forwarding	If you activated external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).

Subject	Dependency/Restriction
DISA	This feature cannot be activated/deactivated or changed by anything other than the Assistant T or HiPath 3000 Manager E.
Call waiting rejection	A secondary destination which has activated DND, will be skipped.
Analog telephones	There is no indication at these telephones that the call being presented is a forwarded call.
Display telephones	An incoming call to a forwarded telephone displays the prompt: *Call from: xxx*. Secondary forwarding destinations will display the prompt: Call from:xxx, where *xxx* is the original destination dialed by the caller.
Hunting to external call forwarding destination	The system-wide flag controls the call forwarding - no answer if an external CF has been activated within a call destination list. If the flag is not set, the call forwarding - no answer ends at the external CF destination. If the flag is set, the call forwarding - no answer continues out of the external CF destination to the station entered in the call destination list. **Note:** For CF on discriminating digit trunks, the flag functions only if you have entered a call cycle for the call forwarding - no answer.

3.1.5 Call Forwarding (CF)—Busy and No Answer

Implementing features, see also Manager E Call forwarding (CF) - Busy and No Answer)

The following call forwarding types are available:

- Call forwarding—no answer
  If an extension does not answer, the system forwards the call to an answering machine or voice mail system after a programmable period of time.
- Call forwarding—busy
  Callers who call a busy extension receive a busy signal. The call destination list determines whether the system carries out call forwarding—busy.

The following are special situations:

- Group call
  A group is always busy if all members of the group are busy.
- Hunt group
  A hunt group is always busy if all hunt group members are busy.
- Free group
  A free group is busy if at least one group member is busy and the caller reached the group by dialing the group number.
- UCD groups
  The system does not check this parameter for UCD groups.
- Announcements
  This parameter has no effect on announcements.

If a station signals a call and the call forwarding destination is busy, the call remains at the station. The system checks the call forwarding destination repeatedly until the destination is free.

Incoming calls on trunks that do not support busy signaling are forwarded or intercepted.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of CF destinations per station no.	3	3	3	3

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding - no answer (CFNA)	If the call forwarding destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.
Ext. call forwarding	You can specify whether the system follows an external call forwarding procedure that a station has programmed in the call forwarding table.
External call forwarding	If you activate external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).
Call waiting	If a user has activated call waiting, the caller camps on even if the user did not configure busy call forwarding in the local call management table. If call waiting is not possible for this user and the user has not configured busy call forwarding, the caller receives a busy signal.
Hunting to external call forwarding destination	The system-wide flag controls the call forwarding - no answer if an external CF has been activated within a call destination list. If the flag is not set, the call forwarding - no answer ends at the external CF destination. If the flag is set, the call forwarding - no answer continues out of the external CF destination to the station entered in the call destination list. Note: For CF on loop start trunks, the flag functions only if you have entered a call cycle for the call forwarding - no answer.

3.1.6 Call Forwarding (CF)

Definition

Call forwarding (CF) enables users to forward all incoming calls (including speaker calls) to another destination. Call forwarding is based on the station number, regardless of how the call reached the activating telephone. If trunk keys have been configured, users can also activate CF individually for a specific trunk key. The following destinations are possible:

- Another subscriber station
- The attendant console
- External destination
- A voice messaging system
- Hunt group
- ACD groups (such as Hicom Agentline Office)/UCD groups

The user is notified when call forwarding is activated. Notification can be in the form of a special dial tone, an indication on the display, or an LED signal.

Outgoing calls can still be made when call forwarding is activated.

End users can choose to forward only external calls or only internal calls. One single access code is used to deactivate any of these choices.

The following are the default feature access codes:

- Call forward both internal and external calls: *11
- Call forward external calls only: *12
- Call forward internal calls only: *13
- Call forwarding off: #1

Call forwarding is implemented on a station number basis, regardless of how the call reached the activating telephone. If trunk keys have been configured, CF can also be activated individually for a specific trunk key.

External Destination

The call forward destination can be an external party. Instead of entering an internal station number, enter the trunk access code, followed by the external number. Since it is possible that an incoming external call could be forwarded to an external destination, the system will check whether the combination of trunks can guarantee release supervision (See table below). If not, a timer is started *Time up to warning tone for MSI - transit* and default is 300 seconds. Once

this timer is up, both subscribers hear a warning tone and another timer is started. Once the second timer is up – *Time between warning tone and release*, default value: 10 seconds – the trunks are released.

CorNet

Calls can be forwarded over a CorNet link.

If a call is forwarded to another node, and it in turn is forwarded back to the originating node, the CorNet links will be released, if the function *Rerouting* is activated.

Incoming Caller ID (PRI, BRI) is passed from one destination to another within the same system. It is not transferred over CorNet-N to a remote node. If a voice mail system is located in a remote mode, and the call is forwarded, the voice mail system will receive the station number of the original called party (for Version 4.0 even A and B extensions are displayed for call forwarding network-wide).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of simultaneous CF operations	150	150	50	20

Dependencies/Restrictions

Subject	Dependency/Restriction
Do Not Disturb	You cannot program CF on a telephone where DND is active.
Call Forwarding (CF)	Up to five call forwarding procedures can be chained.
Ext. call forwarding	You can program only one external CF destination key on each telephone.
MSN trunk forwarding	In V1.0 and later, any user who has an assigned MSN for direct inward dialing can forward this number to the trunk (the feature must be requested from the carrier).
Ext. call forwarding	When dialing external destinations, users must prefix the destination number with the CO trunk group code.

Subject	Dependency/Restriction
Ext. call forwarding	User to User Signaling UUS can be deactivated using the flag “Deactivate UUS per direction” (routing parameters). One effect is that the transmission of the A party’s calling number is suppressed for external call forwarding in a User-to-User-Info-Element.
Prime Line	If Prime Line (simplified dialing) is active, you must press the extension key before dialing an internal station number. In this case, you need not enter the trunk group code for external destinations.
Analog telephones	When using analog telephones, S_0 telephones (not for U.S.), and CMI telephones (not for U.S.), you must wait for a confirmation tone after entering external destinations.
Appointment, automatic wake-up system	When an appointment comes due, the reminder does not follow call forwarding.
CF destination is an ACD/UCD group	A call is not forwarded to an ACD/UCD group in the following cases: • A station is a member of a hunt group. If the hunt group is called and a station with CF to an ACD/UCD group is next in line, the call is not forwarded; instead, the next station in the hunt group is called directly. • A station is a member of a group call. If the group is called, the call is not forwarded to the ACD/UCD group. • A station is a member of a group call no answer. If the group is called, the call is not forwarded to the ACD/UCD group. Exception: The first station entered has activated CF to the ACD/UCD group. In this case, the call is forwarded.

3.1.7 Subscriber Groups

Implementing features, see also Manager E Subscriber Groups

Definition

Subscriber groups are preconfigured in the HiPath 3000/HiPath 5000 systems. They are provided as a common pool for the following features:

- Group call (with or without busy signaling)
- Hunt group (linear or cyclical)
- Paging

The type of group determines how the system handles each group. This means that each group can be either a group call or a hunt group. Names can be assigned to the individual groups from the system administration.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of groups	300 800	300 800 (V3.0 or later)	150	20
Max. no. of stations per groups	20	20	20	8

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding (CF)	When a call is forwarded to a group, the system ignores call forwarding set by individual members of the group.
Call groups	Stations can belong to more than one group.

3.1.8 Group call

Implementing features, see also Manager E Group Call

Definition

Incoming internal and external calls are signaled simultaneously to all the stations in a group. The first station to answer the call is connected to the calling party.

You can implement group call in call management.

Any type of telephone can be used in a Group Call group. The telephones must be located in the same node. A telephone can also be located in another node, it will be registered from the system as a external telephone.

Each call group can be assigned a name in the database with 16 characters maximum.

The first station to answer the call is connected to the calling party. Subsequent calls are signalled at the remaining idle extensions. When all members are busy, they are signalled with Call Waiting tone. The first member to go on-hook will receive the waiting call.

Feature Interaction

A member of a group can activate DND. This means that the telephone will no longer ring when called through the Hunt Group number or when called directly.

Only display telephones can deactivate/activate Call Waiting Tone (#87/*87). They will not be signalled of a call waiting, but will receive a waiting call when they go on-hook.

Data Line security in Manager T (Call Waiting rejection in HiPath 3000 Manager E) can be configured for a member telephone. An idle telephone rings when a call enters the group; however, a telephone is not advised of a call waiting, and if it goes on hook and calls are waiting, the telephone does not ring until a “new” call enters the queue.

Individual members of a group can Call forward-all calls on their telephones. With this feature active, the destination telephone becomes part of the group. However, if the first member of the group Call forwards - no answer to an internal destination, all calls to the pilot number of the group are immediately forwarded to that destination. Individual members can be reached by their station numbers, except for the first member. Only the forward destination can reach the first member through its station number.

Displays

- **Internal calls:** At the calling party, the display shows the name of the group assigned via Manager T (16-15-3) or HiPath 3000 Manager E (Incoming Call -> Hunt Group -> Name). The group members with a display telephone see the station number placing the call *Call from: xxx*.
- **External calls:** The group members' display will show the calling party number (same as call to a single station).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Groups/stations	800/20	800/20	150/20	20/8

Dependencies/Restrictions

Subject	Dependency/Restriction
Ext. call forwarding	If at least one subscriber in a group has activated external call forwarding, you cannot make an unscreened transfer within the group.
Analog telephones	The system does not check whether analog telephones are present. As a result, you must log the telephone onto the system by lifting the handset once.
Intercept	If the call cannot be signaled at any station, it is intercepted.
Call waiting	Busy stations receive call waiting or ring injection if no other stations are available.
Join/Leave Group	Each member of a group call can dial #85 to leave group call and *85 to reenter group call.
Hunt group	If a station is active in group call and a hunt group, any changes (such as dialing *85/#85) apply to both features.

3.1.9 Group Call with Busy Signaling

Implementing features, see also Manager E Group Call with Busy Signaling

Definition

If a group member is busy, incoming calls to the group receive a busy signal. The call also camps on at the busy station.

This type of group (defined in Manager T as *Grp call, RNA* and in HiPath 3000 Manager E as *RNA* under *Type*) functions in the similar manner as a *Group Call* arrangement; that is, when a new call enters an idle group, all member telephones ring. The first station to answer the call is connected to the calling party.

However, if there are any subsequent calls to the pilot number while one member is busy, the calls camp on to the busy extension. No other telephone in the group is signalled. The other members are nevertheless allowed to place outside calls and to receive calls if their individual station number is dialed.

This type of arrangement is useful where an optiset E or optiPoint 500 telephone is associated with a wireless telephone.

Any type of telephone can be used in a Call Group.

Each call group can be assigned a name in the database with 16 characters maximum.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Groups/stations	800/20	800/20	150/20	20/8

Dependencies/Restrictions

Subject	Dependency/Restriction
Call waiting rejection	The call does not camp on if the busy station has activated call waiting rejection.
DID	If a station in the group is called directly, the call is signaled at the dialed extension.
Group	If an optiset E or optiPoint telephone in the group is defective, the group is treated as though it were busy.

3.1.10 Hunt Group

Implementing features, see also Manager E Hunt Group

Definition

A hunt group implements a call distribution cycle within a subscriber group. The stations in the hunt group are linked so that a call to the group that reaches a busy member or is not answered is forwarded to the next available station within the group.

The following hunt group options are available:

- **Cyclical selection:** The search begins with the station after the last station selected. If the call is not answered, it is forwarded to the next station after a timeout (CFNA in call management).
- **Linear selection:** When a call arrives, the search always begins with the first station in the group.

The stations can be reached either by a hunt group number or by the user's station number, depending on the hunt group type.

You can set up hunt groups in call management.

Each Call Group can be assigned a name in the database with 16 characters maximum.

The stations can be reached either by a hunt group pilot number or by the user's station number, depending on the hunt group.

In the case of a Linear Hunt group, the last member of the hunt can be a pseudo number leading to a voice mail system. The pseudo number is the call number which will be transmitted to the voice mail system. It is also possible to have a call forwarding within the destination list.

One station can simultaneously be a member of two groups. Calls from either group are presented to the agent in the normal manner. If the user has a display telephone, he or she can identify the source of the call by the name assigned to the trunk/trunk group.

Groups/Hunt groups is a set of several stations that can be reached at one call number. This call number can be a code or the call number of the first station in the hunt group (master hunt group):

- In Hicom 150 E Office Point/HiPath 3150, 3250, up to 20 groups can be configured, each with eight members.
- Hicom 150 E Office Com/HiPath 3300 to 3550 communication systems support up to 150 groups, each with 20 members.
- Hicom 150 E Office Pro/HiPath 3700, 3750 communication systems support up to 150 groups (300 as of Hicom 150 H V1.0 (Hicom 150 E Office Rel. 3.0)), each with 20 members.

Within each communication system, certain call numbers are reserved for groups or hunt groups, and cannot be used for individual stations. In the Hicom 150 E Office Point/HiPath 3150 to 3350 these numbers are 31 through 49.In the Hicom 150 E Office Com/Pro/HiPath 3500 to 3750 communication systems, these numbers are 350 through 499. As of Hicom 150 H V1.0 (Hicom 150 E Office Rel. 3.0), the numbers 8600 to 8749 have also been assigned for Hicom 150 E Pro communication systems.

The last 60 groups can also be used for UCD applications.

A station can belong to several groups, but groups cannot be entered as members of other groups. (Exception: Basic MULAP and Executive MULAP groups can be recorded as members of hunt groups.) External call numbers can also be entered in groups. For MULAP, the order is only relevant in connection with call pickups. (When multiple members of a MULAP also belong to a call pickup group, then the last member of the MULAP is displayed to the members of the call pickup group on calling the MULAP.)

After a hunt group has been set up with IVM stations, download to the IVM is started automatically after the CDB has been loaded to the Hicom/HiPath 3000.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Groups/stations	800/20	800/20	150/20	20/8

Dependencies/Restrictions

Subject	Dependency/Restriction
Call waiting	If all stations in a hunt group are busy, the call camps on at all stations.
Call signaling	If all hunt group stations hang up simultaneously, call signaling begins at all stations that previously had waiting calls.
Do Not Disturb	If all stations in the hunt group activate DND, a call management procedure handles the call.
Hunt group	Stations can belong to more than one group.
Queue	For cyclical and linear hunt groups, it is not possible to set up a call queue. Call queues can only be defined in conjunction with UCD groups (agents). See Section 3.1.12.1, “UCD Queues”. Note: Voice mail ports can be logged on as UCD agents. This "diversion" means that callers join a queue when the auto attendant application is busy.
Overflow, call forwarding—no answer	You can use call management to set up an overflow station as a CFNA destination for hunt groups.
Hunt group on/off	Each member of a hunt group can dial #85 to leave the hunt group and *85 to reenter the hunt group.
Group call (Rejoin/ leave hunt group)	If a station is active in group call and a hunt group, any changes (such as dialing *85/#85) apply to both features.
Telephone type	Any type of telephone can be used in a Hunt Group.
Group call (Rejoin/ leave hunt group)	Each member of a group call can dial *85 to leave the group call and #85 to join it again.
Call detail recording central (CDRC)	Same rules apply as in a normal conversation. Elapsed time of call is assigned to last station which handled the call.

3.1.11 Leave Group Call/Hunt Group (Stop Hunt)

Definition

An internal extension that is entered in call management as a member of one or more groups (including MULAP groups) can:

- leave and rejoin individual selected groups and
- leave and rejoin all groups

by entering a code, using the service menu or pressing a key.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Groups/stations	800/20	800/20	150/20	20/8

Dependencies/Restrictions

Subject	Dependency/Restriction
User access	The user must be part of a subscriber group to have access to this feature.
Default access codes	The default access codes are *#85* to leave the Hunt Group and **85* to rejoin the group.
DISA	Users can activate this function from a DISA connection for their station or for other stations (Associated Services).
Call Management	If all members of a group invoke the *Leave Hunt Group* feature, internal callers are diverted to the next Call Management destination, or if not defined, the call receives a busy tone.
Leave selected groups	Executive members cannot leave executive MULAP groups.

3.1.12 Universal Call Distribution

Implementing features, see also Manager E Universal Call Distribution (UCD)

Definition

With universal call distribution (UCD), incoming internal or external calls are automatically assigned to the station (agent) idle longest in a UCD group.

If all stations in a UCD group are busy, any additional incoming calls are placed in the queue and then distributed to the group members according to the priority of the call and the length of time it has been waiting. Announcements or music can be played for the waiting callers.

Users (agents) can log on from any telephone by entering an ID. After logging on, the agent is available and is permanently assigned to that telephone until logged off. The assignment is retained even after a system reset.

The UCD group can be forwarded (night answer for UCD).

UCD groups are handled differently from the Call/Hunt Groups in the system call processing.

The agents states are maintained in the event of a power failure.

A UCD group contains agents that belong to a work group. Up to 150 UCD agents can be active simultaneously in the communication system. Accordingly, 150 agent IDs are defined, that can each be assigned to one of up to 60 UCD groups (10 in the case of Office Point/HiPath 3150, 3250). The number of agents per group is not restricted. Only valid agents can be specified and each ID can only be assigned to one group. You must therefore create a list containing the agent ID and the assigned UCD group.

UCD agents have special functions in a communication system. Using their ID, they can log on from any UP0/E or analog telephone (home agent, external extension). After logging on, the agent is available and is permanently assigned to that telephone until logged off. The agent cannot log on to another telephone at the same time. Only one agent can be logged on to a telephone at any time. Each agent is assigned to one work group. After logoff, the agent is no longer available for UCD.

At logon, this assignment to the UCD groups is checked. The port at which an agent is logged on is stored in a non-volatile memory so that the assignment is retained even after the system is reset.

System telephones (without a display) can be used for UCD queries and analog telephones can be used to support home agents. Logon, wrap-up and deactivation codes are available for the key functions on telephones without a display. Entry telephones can also be used.

If Office Look is connected, the internal call number of the UCD groups must be deleted because only external calls are logged.

Linking Hunt Group Master Numbers and Names with the UCD Group

The last 60 hunt groups (10 in the case of Office Point/HiPath 3150, 3250) are used in UCD for configuring a master number, DID number and a group name for the individual UCD groups. Each UCD group is assigned a virtual address number from #201 to #260 (#210 in the case of Office Point/HiPath 3150, 3250) under call forwarding for this purpose. UCD group 1 (#201) can thus be called by selecting the default call number for the group/hunt group.

UCD calls and internal calls

If an agent receives an internal call (not a UCD call) and a UCD call is received in the UCD group at the same time (only this agent is logged on and available), the UCD call is routed to a queue. The UCD call is forwarded to the agent as soon as the internal call is ended.

Agents

Any type of telephone can be part of a UCD group. Analog connections can also be used for remote agents (teleagents).

A UCD group contains agents that belong to a work group. Agent indexes are associated with each of the UCD groups. Each index contains up to 32 agent IDs. A maximum of 150 agents can be active simultaneously in the system. Accordingly, 150 fixed agent IDs (500 for HiPath 500) can be assigned to one of up to 60 UCD groups. An ID can only be assigned to one group. Several IDs can be assigned to one agent, permitting the agent to work in more than one UCD group; however, the agent can only be active in one group at a time.

Certain system features are only available to UCD members.

An agent can logon/logoff from any optiset E, optiPoint 500 or analog telephone connection in the system using an ID. The agent is available after logon, and is permanently assigned to this device until logoff. An agent can only be logged on from one device at a time and only one agent can be logged on per device (even for IP-Clients like optiPoint 400 standard). Each agent is assigned to one work group only. After logging off, the agent is no longer available for UCD calls.

At logon, this assignment to the UCD groups is checked. The port to which an agent logs on is stored in the non-volatile memory in order to retain the assignments should the system be re-set.

Agent Indexes are defined in the following manner:

- HiPath 3000 Manager E: Options ->Incoming Calls ->UCD groups -> Members.
- Manager T: 31-1.

Operation

With universal call distribution (UCD), an incoming internal or external call is assigned to the station idle longest in a UCD group.

Incoming calls are routed to the UCD group using one the following:

- Ring Announcement table
- Direct inward dialing
- Call Management table
- Auto-attendant application
- Transfer

Prim. Ring cycles is the time the system places an unanswered call in an unavailable state before the next available agent is offered the call.

If the overflow queue timer expires before an agent is available, the call can be directed to another UCD group, a station, voice mail, or an external destination. If the overflow target is another UCD group, the caller remains in queue in the original group and is also be placed in queue in the overflow queue. Overflow targets are configured using the *Call destination* table.

A numeric threshold value can be assigned to each group. If the number of calls in queue equals the threshold value, the call overflows.

The UCD group can be forwarded (night answer for UCD).

Additional Parameters per Group

If all agents in a group are busy, each group can independently determine the length of time a caller will remain queued to one group. At the end of which, if no agent has answered the call in the first group, the call simultaneously is presented to the secondary group (if configured) for another predetermined time. The time is set by the number of ring cycles. The number of ring cycles can be set from 1-120, in both groups.

Each group can independently set the maximum number of queued calls; in the first group the maximum is 30, whereas, in the last group, the maximum is 72. These totals include internal and external calls. If more calls attempt to call the UCD groups, they are presented with busy tone, or diverted to voice mail, depending on the call management destination list.

Each group can be configured for calls to be automatically answered by agents: Automatic Incoming UCD Call Connection (AICC).

Each group can specify if the announcements change once or if they are cyclical. If the selection is *Once*, the announcements are presented to the callers once, as they are configured. If the selection is *Cyclic*, the last announcement and the second to last announcement in the configuration are repeated cyclically.

Each group can specify an overflow time. This time is only used to monitor a forwarded call to a remote UCD application.

Each group can specify the delay time before a queued call is switched to the recorded announcement device. The value for this timer is 0-600 seconds. Every call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

Feature Keys/Codes

Agents using display telephones can program vacant keys with the following UCD functions:

UCD Feature	Default access codes	LED state when feature is ON
Log on/off	*401/#401	Lit
Available/Not available	*402/#402	Lit
Work on/off	*403/#403	Lit
UCD Night On/off	*404/#404	Lit
Calls in Queue	*405	–

Otherwise, agents can dial the access code from an idle state or press the *Program/Service* key during a conversation and scroll to and select *UCD* and scroll to the UCD feature to activate/deactivate.

Non-display and analog telephones must dial the access codes from an idle state or during a conversation after putting the caller temporarily on Consultation Hold and dialing the access code. To return to the call, the agent must press the *Consultation* key once again, or do a hookswitch flash in the case of an analog telephone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
UCD groups	60	60	60	10
UCD agents	150	150	150	150
ID numbers	150	150	150	150
Agents per station	1	1	1	1

3.1.12.1 UCD Queues

Implementing features, see also Manager E UCD Queues

Definition

If all stations (agents) in a UCD group are busy, incoming calls are placed on hold and entered in a queue. You can configure the number of calls in a queue for each UCD group individually.

Agents of a UCD group can display the number of calls in the queue for their UCD group. Waiting parties in the queue can receive an announcement or music on hold.

To display the number of UCD calls in queue, users with display telephones can program a feature key or during a call, press *Program/Service*, scroll to and select *UCD?*, and scroll to and select the wanted feature. Alternatively, during a conversation, users can press the *Program/Service* key and dial the access code.

Non-display and analog telephone users must dial the access codes from an idle state or, if during a conversation, they must temporarily put the calling party on consultation hold by pressing the *Consultation* key followed by the access code. Or, in the case of an analog telephone, a hookswitch flash must be performed.

Non-display telephones (optiset E or optiPoint 500) can have buttons on the telephones programmed for specific features; however, this can only be done via HiPath 3000 Manager E.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Queues per UCD group	1	1	1	1
Maximum number of calls in queue per UCD group	30 for UCD groups 1 to 59 72 for UCD group 60			
Minimum number of calls in queue per UCD group	1 in V4.0 SMR-6 or earlier 0[1] V4.0 SMR-7 or later			

1 If the number is configured with 0, a call is directly forwarded or rejected if no agent is available.

3.1.12.2 UCD Call Prioritization

Implementing features, see also Manager E UCD Call Prioritization

Definition

Within the queue, incoming internal and external calls for the UCD group are prioritized according to call type.

The system distributes waiting calls to the UCD group according to priority and then the length of time they have been waiting. In other words, a high-priority waiting call is answered before a low-priority call that has been waiting longer.

In the case of trunk circuits, the priorities are assigned according to trunk (per B channel).

A priority of 1 to 10 is allocated for the classification of internal calls. The system then distributes the queued calls to the UCD group according to the priority and queue time; that is, a queuing call with a high priority can be answered sooner than a call queuing for a longer time but with a lower priority. In the case of trunk circuits, the priorities are assigned according to trunk (per B channel). The system evaluates incoming calls for a UCD group by the priority established.

Priority levels are set in HiPath 3000 Manager E. The Internal call priority is also established on the HiPath 3000 Manager E Priority screen, under Priorities for internal calls.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Priority levels	10	10	10	10

3.1.12.3 UCD Subscriber States

Definition

After a user (agent) logs onto the system, the current status of the UCD station where the agent logged on appears on the display. The following states are possible:

- **Available:** UCD calls are signaled to the UCD group member (agent).
- **Unavailable:** The UCD member (agent) has logged off from the workstation (to take a break or leave the group).
- **Work time:** The user (agent) needs time to process a UCD call.
- **Autowork time:** The member (agent) is automatically removed from the UCD group for a certain period after processing a call.
- **UCD incoming call:** The member (agent) is processing a UCD call (even after transfer).
- **Non-UCD internal call:** An internal non-UCD call is in progress.
- **Non-UCD external incoming call:** An external non-UCD call is in progress.
- **Non-UCD external outgoing call:** The member (agent) is engaged in an outgoing external non-UCD call.
- **Removed:** The telephone has physically failed.

Members (agents) can log off when they have completed their work and are no longer available.

They can still be reached directly via their direct inward dialing (DID) number.

Members (agents) can log off when they have completed their work or are no longer available. However, they can still be reached at their DID number.

The above list of UCD subscriber states does not represent the actual display prompts on the telephone.

After a user logs onto the system, the status of the UCD station is automatically set to Available. The display prompt confirms this status. Whenever the agent changes states, the change is displayed. However, the highest priority display (Available/Not available) appears and remains on the display.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Do not disturb (DND), call forwarding (CF)	Members (agents) who activate DND or CF are logged off.
Call forwarding - no answer (CFNA)	If a member (agent) does not accept a call, the system automatically treats the member like an unavailable agent when CFNA is activated.

3.1.12.4 Available/Not available

Definition

Members (agents) can temporarily leave a UCD group (for breaks, and so on) but still remain logged on to the UCD group.

The system continues to signal direct calls to this agent.

If necessary, the agent can send a message to any station, for instance to ask for help.

When an agent logs on to the group, the agent is immediately and automatically placed in the “available” state and can start processing calls.

The default access codes for this feature are:

- Not available: #402
- Available: *402

Display telephones can program feature keys **Available/Not available** on the optiset E and optiPoint 500. Non-display telephones can have a key programmed using HiPath 3000 Manager E.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding - no answer (CFNA)	CFNA is activated when all members (agents) have left the UCD group.

3.1.12.5 Wrap up

Implementing features, see also Manager E Work Time

Definition

With this feature, UCD members (agents) can temporarily prevent calls from being assigned to their workstations. This allows them to leave the UCD group for short periods to complete paperwork following a call. Calls to the UCD group bypass any workstation that has this feature activated.

In addition, members (agents) can activate Automatic wrap-up time. In this case, the agent is automatically removed from the UCD group for a certain period after processing a call.

The automatic wrap up time is variable up to 100 seconds, in steps of 5 seconds (ring cycle). At the end of the automatic wrap up time, the agent is placed back in the group.

An agent in *Wrap up* state can still be called by dialing the station number.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

3.1.12.6 Recorded Announcement/Music on Hold (MOH) with UCD

Implementing features, see also Manager E Recorded Announcement/Music on Hold

Definition

This feature allows customers to play a greeting message (announcement before answering) to internal callers or external callers while they are being switched. Trunk-by-trunk assignment of announcement devices is possible.

With UCD, music and/or further announcements can be played to callers if they cannot be switched immediately. These announcements (or music) can be played in any order (up to seven) until a group member (agent) becomes available.

It is possible to play music on hold or announcements from a connected external announcement device using the following types of devices:

- Devices that always start at the beginning of the message when activated (such as greeting messages).
- Continuous playback devices (for announcements and music on hold).

The announcements can be assigned to each UCD group individually.

The HiPath 3750 and HiPath 3700 supports access for 16 unique announcements and one MOH source. The HiPath 3550 and HiPath 3500 supports 4 announcements and one MOH source. Each UCD group can be configured with up to 7 announcement steps. A unique announcement and the duration of the announcement can be defined for each step. The time is defined as ring cycles, that is in increments of 5 seconds. The announcement script can be configured to play a single time or continue to cycle until the call is answered; this is configured in the UCD group parameter *Ann. change*.

Analog ports can be configured as a digital announcer interface. E&M tie line ports can be used in HiPath 3800, HiPath 3750 and HiPath 3700 as the interface to the digital announcer.

The STRB (HiPath 3550 and HiPath 3350) and STRBR optional board (HiPath 3500 and HiPath 3300) can control the start of the external announcement device in lieu of the contacts on the TIEL circuit card (HiPath 3750 and HiPath 3700) and TMEW2 board (HiPath 3800).

Announcement devices are configured with a start time and a listen duration time. Music on Hold devices are endless loop type recordings with continuous play attributes. Up to 32 parties held in queue can hear an announcement.

The *Ann. delay time* parameter is used to configure the delay before a queued call is switched to the recorded announcement device (allowed value 0-600 seconds). Each call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Free analog subs. ports		EXM, EXMR, MPPI (not for U.S.), Free analog subs. ports	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Ann. devices	16	16	4	1
Max. no. of announcements per group	7	7	7	7

Dependencies/Restrictions

Subject	Dependency/Restriction
Seven announcements per group in HiPath 3550	Although only four announcement devices can be connected to HiPath 3550 and HiPath 3500, seven announcements can be used per group by connecting an individual announcement device or combining the four devices.

3.1.12.7 Overflow

Implementing features, see also Manager E Overflow With UCD

Definition

If a call in the queue is not answered within a specific period, the agent is switched to unavailable mode and the call is transferred to the next available UCD member (agent). The call is forwarded to an overflow destination (CFNA destination) only if all UCD agents are unavailable. Users can specify the destination and time in call management.

Users can also define a maximum number of waiting calls. If this maximum limit is exceeded, any new calls are forwarded to the overflow destination.

The overflow destination can also activate external call forwarding.

The overflow destination can be a voice mail system. The number forwarded to the voice mail system is the original called party's number.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Overflow per group	3	3	3	3

3.1.12.8 Automatic Incoming Call Connection (AICC) with UCD

Implementing features, see also Manager E Automatic Incoming Call Connection (AICC) With UCD

Definition

This feature allows members (agents) to answer incoming calls without performing any operator actions. To do this, the member must have a headset and an enable key on the telephone. A tone in the headset lets the UCD member know that a call has arrived, and the call is then automatically switched through.

Automatic incoming call connection (AICC) can be configured separately for each UCD group. This feature activates automatically if a headset is detected or configured at a station.

Automatic incoming call connection (AICC) can be configured separately for each UCD group and applies to the whole group. Using Manager T or HiPath 3000 Manager E, stations must be individually configured for headset operation; however, if the HiPath 3000/HiPath 5000 systems detect a headset adapter, the system automatically sets the headset flag in the database. AICC activates automatically if a headset is detected or configured for a telephone. The headset flag is set in the *Set up station* tab in the HiPath 3000 Manager E.

The system routes calls to agents configured for AICC whether there is a headset physically connected or not.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiPoint or optiset E, headset, disconnect key			

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog telephones	Analog stations cannot use this feature because the system cannot guarantee that a telephone is physically connected to the port.
Display telephones	A brief tone is heard in the headset, signalling to the agent that a call has arrived, and the call is answered automatically.

3.1.12.9 UCD Night Service

Definition

UCD groups can activate a group-specific night answer independent of system night answer. If agents have activated the night service feature for their own UCD group, all calls for this group are routed to the appropriate UCD night station. Each user can activate or deactivate group-specific night service. All users remain logged on after night service has been activated. If system night service is active simultaneously, it has priority, and call management follows it.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Agent status	If you activate the night service feature, your current status does not change.
System night service	UCD night service can be activated independently of system night service and vice versa. If a call reaches a UCD group by way of system night service, the call remains in the UCD group independently of UCD night service.
Group-specific night service destination	The group-specific night service destination can be an internal extension, an external destination or any other UCD group.
Calls currently being processed	Calls that are being processed during activation of UCD night answer are not affected.

3.1.12.10 UCD Group Status Display

Definition

Users can use a procedure or code to display the number of calls waiting in the queue on the optiset E or optiPoint telephone.

Users can program a feature button on the optiset E or optiPoint 500 telephone for this feature.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital subscriber line module			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiPoint or optiset E, headset, disconnect key			

3.1.12.11 UCD Home Agent

Implementing features, see also Manager E UCD Home Agent

Definition

Users can integrate an off-premises extension (analog telephone) into the UCD group as a home agent.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
UCD	Only the most important functions are accessible via codes (logon, wrap up, unavailable).

3.1.12.12 Transfer to UCD Groups

Definition

Internal and external calls can be transferred to a UCD group. If the call is not answered within a certain period, a recall is carried out. This time is fixed and cannot be changed.

Announcements can be played for the external transferred calls.

Internal calls transferred to a UCD group also hear the announcements.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. number of UCD groups	60	60	60	10

Dependencies/Restrictions

Subject	Dependency/Restriction
Announcements	Internal transferred calls do not receive announcements.
Automatic recall	The recall time for transferring calls to UCD groups is longer than for other stations.

3.1.13 Silent Monitoring (For Selected Countries Only)

Implementing features, see also Manager E Silent Monitoring

Definition

An authorized user can monitor a call in progress at any internal station without the other party's knowledge.

Silent Monitoring is only possible if the station to be monitored is engaged in a call. The monitored connection is released as soon as one of the stations in the connection is put on hold, transferred or the call is ended. The monitored connection can only be resumed when the station to be monitored is again engaged in a call.

For V1.2 and later, it is possible for all stations in the system to use the Silent Monitoring capability, rather than just one station. Set the appropriate flags for each authorized station.

This feature can not be used with IP phones but with all other types of phones.

If the user who uses the override feature has an IP phone, or if busy override is to be used for a call made with an IP phone, silent monitoring is not possible.

The microphone is automatically muted if the overriding station is an optiset E or optiPoint 500 terminal. This feature is not available when using a mobile telephone (CMI) because in this case the system does not support automatic microphone muting.

The microphone is automatically muted if the muted station is an optiset E or optiPoint telephone. This feature is not available to analog devices and mobile telephones (CMI) because the system does not support automatic microphone mute in such cases.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Silent monitoring	To enable the feature for a station, you must set the station flags for „Silent Monitoring“ and „Override class of service on“.

Subject	Dependency/Restriction
Silent monitoring	This feature can be used in the following countries only: Australia, Brazil, France, Great Britain, Hong Kong, India, Ireland, Malaysia, the Netherlands, Singapore, South Africa, Thailand, USA, international markets. As of V3.0 SMR-6, this feature can also be used in Argentina, Belgium and Spain. As of V4.0 SMR-04, this feature can also be used in Portugal.
Silent monitoring	The call can be overridden only using code *944 + station number (not from a menu).
Signaling	The call is not signaled at the overridden station (no display, no alerting tone, no sound).
Conference	Silent Monitoring limits the maximum number of conferences. Maximum number of conferences possible in system = maximum number of simultaneous Silent Monitoring stations.

3.1.14 Do Not Disturb (DND)

Definition

Users can activate do not disturb (DND) on their stations so that no incoming calls are put through.

A user who has activated DND hears a special dial tone after lifting the handset. When the feature is active, the message Do not disturb is also displayed on optiset E or optiPoint telephones with display. On all other optiset E or optiPoint telephones, the station LED indicates a busy state.

The attendant console, night station, or any authorized station can override DND. The call is then immediately transferred to a station with DND and the AC can then immediately transfer a blind call. If the station has activated the ringer cutoff feature, the call is signaled visually only. If the station with do not disturb activated is engaged in a call, the incoming call is signaled as call waiting.

A caller who dials a telephone with DND activated receives a busy signal and is not allowed to camp on.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
AC, night station	The AC and night station cannot activate DND.
Call forwarding (CF)	You cannot specify DND if call forwarding is active on the same telephone.
Call forwarding (CF)	You cannot activate call forwarding to a telephone with DND.
Callback	If a callback is initiated to a station with DND activated, the callback is not executed until DND is deactivated. If the subscriber with DND activated initiates a callback, this will override the DND function.
Appointment, automatic wake-up system	If a station has set an appointment and activated DND, an audible signal is sent to the telephone when the appointment comes due.

Subject	Dependency/Restriction
DISA	The feature can be activated by users for their own stations, or can be activated by one user for another (Associated Services).

3.1.15 Ringer Cutoff

Definition

If this feature is activated by an optiset E or optiPoint telephone with display, incoming calls are signaled with a brief alerting tone and then shown in the display only.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiset E or optiPoint telephone with display			

Dependencies/Restrictions

Subject	Dependency/Restriction
Ringer cutoff	You can only activate this feature for optiset E or optiPoint 500 telephones with display.
Appointment, automatic wake-up system	If a station has activated ringer cutoff and an appointment comes due, it is signaled audibly.

3.1.16 Missed Calls List/Station Number Storage

Implementing features, see also Manager E Caller List/Station Number Storage

Definition

Unanswered calls to an optiset E or optiPoint telephone can be automatically stored in a chronological caller list. The time of each call is specified, and the user can dial the entered callers directly.

Users can also manually store incoming and outgoing calls in the caller list.

You can program a system parameter so that the telephone also automatically stores external calls that were **answered**. Because the parameter is system-wide, this setting applies to all caller lists in the system.

Each new entry can be automatically indicated by an LED. In addition, unanswered entries can be displayed on the screen by pressing a preprogrammed key. The LED is deactivated as soon as the user retrieves the list.

On telephones with a 2-line display, the oldest entry is displayed first.

Missed Calls List flag

The missed calls list can contain up to ten entries for each station or station group. The maximum number of lists per communication system is:

- **100**, for Hicom 150 E Office Point/HiPath 3150, 3250
- **650**, for Hicom 150 E Office Com/HiPath 3300 to 3550 and Hicom 150 E Office Pro/ HiPath 3700, 3750.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	$U_{P0/E}$ station	$U_{P0/E}$ station	$U_{P0/E}$ station	$U_{P0/E}$ station
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiset E or optiPoint telephone with display			
Subscriber group	max. 10 entries			
Lists/entries	650/10	650/10	650/10	100/10

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog trunk	Only calls with a station number or a name are recorded (calls on analog trunks are not recorded).
Power failure	The entries are deleted in the case of a power failure or a system reset.
Internal/external calls	You can store either external calls only or both internal and external calls.
Repeated calls	If a subscriber calls repeatedly, only the time of the entry and the number of entries are updated.
Group	If you belong to a group, you can access the group's caller list in addition to your own caller list.
Storing an external answered call	You can access the "store station number" function manually from the service menu.

3.1.17 Call Pickup (AUN) Within Call Pickup Groups

Implementing features, see also Manager E Call Pickup Within Call Pickup Groups

Definition

Calls that are signalled acoustically at a station in a call pickup group are simultaneously indicated by an LED (next to the programmed key) and signaled on the displays of the other group members. The call can be picked up by pressing the programmed key or dialing a code. Acoustic pickup signaling (after 5 rings) can also be configured system-wide.

The time from start of ring to acoustic notification of all group members, is not variable. If there are several calls ringing the group, they are picked up in order of arrival.

Calls destined for Call Keys, Trunk Keys or General Call Keys can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, the key indicates it is idle.

A version of the feature is Targeted call pickup outside of a pickup group.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Groups/stations	32 / 32	32 / 32	32 / 32	8 / 8

Dependencies/Restrictions

Subject	Dependency/Restriction
Call pickup	Only voice devices can be selected. A station can belong to only one group.
Automatic recall Callback	Recall and callback calls are not signaled to the other group members.
Do Not Disturb	Stations that have activated DND do not receive call pickup signaling.
Transfer	Unscreened transfer calls cannot be picked up within the group.
Groups	All group members are authorized to pick up calls.
Call waiting	A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up.

3.1.18 Targeted call pickup outside of a pickup group

Definition

Users can also pick up calls for other internal parties who do not belong to the same call pickup group and therefore do not appear on the screen. This increases the likelihood that incoming calls are always answered. To pick up the call, the user must press a programmed call pickup key or enter a code and then dial the selected party's station number.

The time from start of ring to acoustic notification of all group members, is not variable. If there are several calls ringing the group, they are picked up in order of arrival.

Calls destined for Call Keys, Trunk Keys or General Call Keys can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, the key indicates it is idle.

A version of the feature is Call Pickup (AUN) Within Call Pickup Groups.

A **call pickup** group is a collection of stations that are all signaled when an incoming call is received by any member station. Members of the same pickup group answer each other's calls. Calls to one telephone in the pickup group are then signaled optically at all other telephones in the group (system telephones) and are also signaled acoustically after a timeout. Any telephone can then pick up the call. Stations can be members of only one group.

- With Hicom 150 E Office Point/HiPath 3150, 3250, you can define from one to eight groups of up to eight stations each.
- With Hicom 150 E Office Com, Hicom 150 E Office Pro and HiPath 3300 to 3750 communication systems, you can define up to thirty-two groups with up to thirty-two members each.

Answering Calls

When stations are collected into call pickup groups, a call to any member of the group is signaled to all members. However, the extension that is being called is the only station that will actually ring. The call is signaled to other members initially by a flashing LED next to the pickup key and, on display-model system telephones, by a display message. Then, if the call is not answered after a specified period of time, a tone sounds at all of the member stations (unless the tone has been turned off through the Settings | System Parameters | System flags with the option **Warning Signal for Call Pickup Groups)**.

Members can pick up a call either through a programmed function key, by entering the appropriate call pickup service code, or through an optiGuide prompt. Two different types of function keys support this feature: Call Pickup Directed and Call Pickup Group.

Call pickup can also be activated by users who are not in the call pickup group. These users enter the call pickup code (*59) followed by the extension number of the called station.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call waiting	A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up.
Call detail recording central (CDRC)	Charges and/or elapsed time incurred as a result of a Picked up call, are assigned to the station which picked up the call.

3.1.19 Call Pickup from Answer Machine

Implementing features, see also Manager E Call Pickup from an Answering Machine

Definition

optiset E or optiPoint users have the option of picking up a call that has already been answered by an answering machine by pressing the appropriate DSS key. This releases the connection to the answering machine.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	$U_{P0/E}$ station	$U_{P0/E}$ station		
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiset E or optiPoint telephone			

Dependencies/Restrictions

Subject	Dependency/Restriction
Answer machine	The answering machine port must be configured as an answering machine in system administration.
Answer machine	You must program an Answering machine call pickup DSS key on the optiset E or optiPoint telephone for this feature to work.

3.1.20 Fax Waiting Message/Answer Machine

Implementing features, see also Manager E Fax Waiting Message/Answering Machine

Definition

A Fax/Answer Machine key has an LED to let the user know that a fax waiting message or a call for the answer machine has arrived.

A call directed to an analog port configured as a FAX machine or as an Answer Machine lights an LED at a station to advise the user that the FAX or the Answer Machine has answered an incoming call. The LED is lit steadily.

The user can turn off the LED by pressing the key.

The HiPath 3000 Manager E can program a key on the optiset E or optiPoint 500. The button name in the Key Programming tab is Message for FAX/answ.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	$U_{P0/E}$ station			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiset E or optiPoint telephone with display			

Dependencies/Restrictions

Subject	Dependency/Restriction
Program key	You must also enter the station number when programming the key.
Analog port	The analog port must be configured as a fax machine or answering machine.
Info key	The LED goes out when you press the key.

3.1.21 Deferring a Call

Implementing features, see also Manager E Deferring a Call

Definition

While an incoming call is being signaled at a station, the called party can set up an outgoing connection without answering the incoming call.

The waiting call is then signaled as a camped-on call.

As an incoming call is presented, the user presses a Call key or Trunk access key and places an external call. The feature can be used on a Basic telephone, if you change the default keys.

The calling party does not notice a change in signalling if Call Waiting is set for ringing on Call Waiting.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	$U_{P0/E}$ station			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	optiset E or optiPoint telephone with display			

Dependencies/Restrictions

Subject	Dependency/Restriction
Deferring the call	You must have trunk keys or at least two call keys programmed on the telephone.
Deferring the call	An key for the feature must be available.

3.1.22 Station Number Configuration Using Manager T

Definition

HiPath 3000/HiPath 5000 automatically assign the following:

- Internal station numbers

  and

- Internal group numbers

Station number assignment does not need to be explicitly configured. This feature allows users to modify the preset internal station numbers using Manager T.

You can use the menu option Search for number to locate individual station numbers. After you enter an internal station number, its logical port is displayed in the format SSPP (SS = slot, PP = port).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. number of internal station numbers	as hardware			
Max. number of internal group numbers	800	800	150	150

Dependencies/Restrictions

Subject	Dependency/Restriction
Station number configuration	An internal station or group number must always be unique in the system and must not conflict with other station numbers in the numbering plan.

3.1.23 ANI (For Selected Countries Only)

Definition

The ANI feature (automatic number identification) displays the calling party's station number, which is transmitted over analog trunks.
While the phone is ringing, the station number is transmitted by BFSK (binary frequency shift keying) during the first ringing phase. HiPath 3000 supports the feature only until the called party lifts the handset.

In V4.0 SMR-7 or later, the subscriber name is evaluated in addition to the call number and is displayed on the telephone.

Internally, the system handles ANI data just like an ISDN number.

To run the ANI feature, you must have the ANI4 or ANI4R options board, which is used in conjunction with the TMGL4 or TMGL4R trunk board.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	–	–	x	x
Hardware requirements	–	–	ANI4 ANI4R	ANI4 ANI4R
Software requirements	–	–	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Country specifics	Requires country-specific boards or firmware versions.
Trunk boards	The trunk boards used must support call charging module assignment GMZ (not for U.S.).

3.1.24 Reject Calls

Definition

This feature allows internal and external incoming initial calls to be rejected by pressing

- the release key on optiset E or optiPoint telephones with display or
- the consult key on mobile telephones (CMI).

The rejected call then follows the Call Management. If there is no other call forwarding destination, an external call is intercepted by the attendant console. In the case of a loop start call, the call will remain frozen in the queue if no subsequent destinations can be reached. In all other cases, the call is cleared down.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display/ mobile telephone			
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Automatic recall, call-back, parking, hold	Transferred recalls, queued callbacks, held or parked calls cannot be rejected.
Group call, hunt group call, MULAP	In these cases, the entire group call ends and follows Call Management. The call is released if there is no other call destination.
Call forwarding (CF)	There is no immediate call forwarding after the call is rejected. The entries in Call Management determine the next step.
Intercept	This follows the intercept criteria in Call Management.
Intercept	A call intercepted by the attendant console cannot be rejected.

3.2 Features for General Outgoing Traffic

3.2.1 Dual-Tone Multifrequency Transmission (DTMF)/Temporary Signaling Method Changeover

Implementing features, see also Manager E Dual-Tone Multifrequency Transmission (DTMF)

Definition

When this feature is activated, all keystrokes that the user enters on the dialing keypad while engaged in an internal or external call are transmitted as DTMF digits.

Users can activate this feature:

- System-wide (automatic DTMF).
  Users are automatically switched over to DTMF mode after each successful connection (even with CMI [not for U.S.]).
- Individually while engaged in an internal or external call by pressing a key or entering a code.
  Afterwards, all keystrokes from the dialing keypad are transmitted as DTMF digits. The feature is activated temporarily and is deactivated when the handset is replaced.

DTMF mode remains activated even when the following features are activated: Transfer, Consultation hold, Toggle/Connect, Call pickup, Accepting a camped-on call

Users can configure the pulse/pause in the system. However, configuring the pulse/pause is not recommended. Contact your second-level service organization if required.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Dial pulsing (DP) station	DP stations cannot use this feature.
Station on hold	A station on hold cannot transmit any DTMF signals.
Conference, parking, automatic recall	DTMF mode remains activated during a conference, during a recall, or in call park mode.
Other features during DTMF mode	When DTMF mode is active, you must always use the Program/Service key to activate features during a call.
Voice mail	DTMF mode is automatically activated when a station configured as voice mail is selected.
US DTMF Default	In the US, this default value for this feature is On.

3.2.2 Individual Lock Code

Definition

Users can activate a lock code that restricts outgoing external calls (COS 1), although they can continue to place internal calls and forward incoming calls to internal stations. Users activate the lock code by pressing a key or dialing a code and entering their 5-digit personal identification number (PIN).

System speed dialing remains active while the lock code is on.

The PIN must be configured first; only digits 0-9 are allowed. The default PIN is set at 00000 for all telephones. If the user has forgotten the PIN, the PIN can be reset to the default value 00000 by the HiPath 3000 Manager E or by the Attendant position (station 10/100).

While the Lock Code feature is activated, the user can only use the following features:

- Speed dialing system
- Room Monitor
- Speaker call
- Internal calls
- Conferences with internal stations

The function #0=Reset all services does not deactivate this feature. It is not possible to change the PIN on a locked telephone. This PIN is the same PIN that a user must enter when entering the system via Direct Inward System Access (DISA). The external user can activate/deactivate Individual Lock Code from a DISA connection, but the user cannot change the PIN from a DISA connection.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Extension trunk access	After Lock Code is activated, the extension trunk access is set to a system-wide class of service (default = 1).
Extension trunk access	After Lock Code is activated, you can reduce the class of service but not select a higher class of service.
Lock code	While lock code is active, you cannot activate any features that could result in charges being assigned to this station. Exception: system speed dialing.
Telephone type	This feature works with any type of telephone in the system.
Non-display/analog feature reminder	Upon going off-hook, broken dial tone is presented to the user as a reminder that a feature is active on the telephone.
Invoke from a talk state	During a conversation, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code and the PIN and confirmation tone is returned. The user can then return to the held party by pressing the *Consultation* key once again.

3.2.3 System Telephone Lock (Changeover)

Implementing features, see also Manager E System Telephone Lock (Changeover)

Definition

An authorized user can lock a telephone for an internal station.
This feature has the same function as the individual lock code. The lock code can be deactivated from the attendant console or the station.

System speed dialing remains active while the lock code is on.

The default authorized user is station 10/100. The authority can be transferred by the default station to another station using the expert mode of Manager T or via HiPath 3000 Manager E. The default access code is *943. The authorized station can be any type of telephone, although a display telephone is recommended.

Activating the Lock Code feature changes the station's class of service (COS) to 1: PCPBX-outward-restricted trunk access which prevents all outgoing external calls, although stations can continue to place and forward internal calls.

While the Lock Code feature is activated, the user can only use the following features:

- Speed dialing system
- Room Monitor
- Speaker call
- Internal calls
- Conferences with internal stations

The function #0 = Reset all services does not deactivate this feature. It is not possible to change the PIN on a locked telephone.

If the authorized station has activated a Lock Code, the authorized user must first deactivate the Lock Code before attempting to activate/deactivate another station's Lock Code.

To activate/deactivate another station's lock code, the authorized station does not need to know or use the individual's PIN. No PIN is required to activate/deactivate the other stations' Lock Code.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Extension trunk access	After Lock Code is activated, the extension trunk access is set to a system-wide COS (default = 1).
Extension trunk access	After Lock Code is activated, you can reduce the class of service but not select a higher class of service.
Lock code	While Lock Code is active, you cannot activate any features except for system speed dialing, room monitor, speaker call, and conferences with internal stations.
Feature Active Notice	At the destination telephone, the user is advised of a feature activation by hearing broken dial tone when going off hook, or if the user has a button for this feature, the LED will be lit. If the telephone is unlocked, the broken dial tone is removed and/or the LED is extinguished.
Non-display/analog	If the authorized station is a non-display or analog telephone, the user, from an idle state, can access the feature by dialing *943, followed by the destination station for which Lock Code is to be activated/deactivated, followed by * to activate or # to deactivate. Confirmation tone is returned only after all digits have been dialed. Error tone will not be returned if the authorized station inadvertently attempts to lock an already locked telephone, or attempts to unlock an already unlocked telephone

3.2.4 Automatic COS Changeover after Timeout

Definition

With the previous COS changeover function (see Section 3.2.3, “System Telephone Lock (Changeover)”), it is only possible to distinguish between day/night service. This changeover type is valid for all stations.

With automatic COS changeover, stations are combined to form profiles (e.g. management, sales). A schedule can be configured for each profile. This defines which COS is to be used for which timeslot during the week.

Connection between Automatic COS and Automatic Night Service

The COS feature is correlated with automatic/manual day/night service. The following distinction is made:

- The call destination is reached via call management
  This is implemented via call management and is independent of automatic COS changeover. There are different call lists for day and night.
- Intercept destinations
  The intercept destination is only determined by automatic/manual day/night service.
- COS Group:
  At night, the relationship between the COS group and the station is fixed (configurable). This is not affected by automatic COS changeover.
  During the day, the COS group can switch between specific times of the day if "Automatic COS " is set system-wide. Alternatively, if "Automatic COS" is not set, the COS group has a fixed (configurable) relationship with the station.

General Description

- If "Automatic COS" is not set system-wide, no changes are made to the COS group that is currently set. A station can have a different COS group for day and night.
- If "Automatic COS" is set system-wide for the day, the profile and schedule that is configured will determine the COS group that is assigned to a station. At night, the station has the same COS group as previously assigned. Each profile has a different schedule to which the relevant COS group (CG) is assigned.

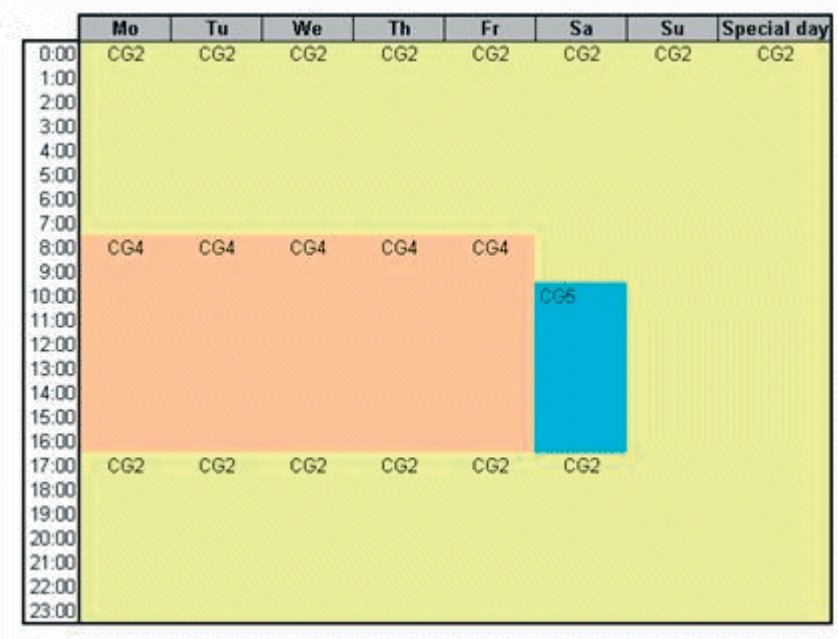


Figure 3-3 Example for a Schedule

- Manual activation of the code lock overwrites automatic mode for the associated station.
- In the default scenario, automatic changeover of COS classes is deactivated. The existing COS class and call forwarding algorithm are applied.
- Automatic COS changeover and day/night service do not function across all nodes.
- Only one time zone is supported by the system. Remote station groups working in different time zones are set to the system's time zone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Automatic Night Service	The "Automatic Night Service" feature has priority over the "Automatic COS Changeover" feature. If automatic night service is activated, the COS is handled as normal and the COS group applied for the night. The COS schedule is only relevant during the day.

3.2.5 Hotline

Implementing features, see also Manager E Hotline

Definition

With the hotline feature, the telephone automatically connects to a predefined internal or external destination after the user lifts the handset.
Users can also configure the feature so that the two locations connect only after a defined period (hotline after timeout). This delay is configured centrally and can be activated and deactivated on each station.

Call forwarding and call forwarding—no answer are evaluated at the destination.

If the Hotline Delayed station (originator) dials a digit before the timeout limit, the timer is cancelled and the station is not forwarded to the Hotline destination whether another digit is dialed or not.

Hotline (Number)

In the case of a Hicom 150 E Office Pro/HiPath 3700, 3750 or a Hicom 150 E Office Com/HiPath 3300 to 3550, you can select from a maximum of six numbers. If you have a Hicom 150 E Office-Point/HiPath 3150, 3250 system, only one hotline destination is supported.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Hotline destinations	6	6	6	6

Dependencies/Restrictions

Subject	Dependency/Restriction
Do Not Disturb	If the destination station is in Do not disturb (DND), the caller hears busy tone.

Subject	Dependency/Restriction
Destination	• If the internal destination is busy, the caller camps on. • If the internal destination is a display telephone, the destination's display shows Call from: xxx, where xxx is the Hotline originator's station number: • The destination can be an internal station, an external destination (up to 32 digits can be programmed in HiPath 3000 Manager E or Manager T) or a Subscriber group.

3.2.6 Mobile PIN (FlexCall)

Implementing features, see also Manager E Mobile PIN

Definition

This feature allows a user (active station) to conduct internal or trunk calls (flex calls) from a remote telephone (passive station) using his or her own user profile (station number, name, toll restriction, call detail recording). The call detail data (CDRC/CDRS) is assigned to the active station.

To activate this feature, perform one of the following steps on the remote terminal:

- Enter “Mobile PIN (FlexCall)” code + local station number + PIN
- Call service menu + enter local station number + enter PIN
- Press the programmed key + enter local station number + enter PIN

The feature remains activated until the active station terminates the call.

As long as this feature is activated, the current telephone (passive station) cannot be reached under its actual station number. Do not disturb is activated.

An active station can be a:

- Stations
- MULAP (in this case, the PIN of the primary station in the MULAP group is requested)

An active station **cannot** be a:

- Hunt group
- ACD group

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Services	This feature supports only the voice service.
Call detail data	Call detail data (CDRC/CDRS) is assigned to the station number of the active station. If the active station is the primary station in a MULAP group, call charges are recorded just as though the MULAP primary station had placed the call.
Automatic Recall	A recall is signaled on the passive station telephone but is no longer part of the flex call. For this reason, it is conducted using the profile of the passive station (number, name and classes of service).
Busy indication	Busy indication applies to the passive station telephone. Only the trunk of the active station is signaled as busy.
Features that can be used after flex call is activated	• Speaker call (paging) • Conference • Busy override (busy override class of service taken from active station) • Toggle • Park • Consultation hold • Transfer • Call pickup (during a flex call, calls are picked up using the profile of the active station) • Do Not Disturb • Call forwarding (CF) • Send message (message waiting) • Callback • Station number suppression • Call connection

3.2.7 B Channel Allocation

Implementing features, see also Manager E B Channel Allocation

Definition

This feature allows you to allocate outgoing connection B channels on an S_{2M} link to different trunk groups.

For outgoing calls, only B channels that also correspond to the trunk group are selected (by the code-selected trunk group, overflow trunk group, or LCR-selected trunk group). If there is no free B channel available for this trunk group, the system rejects the connection request and reacts in the way it has been configured.

Incoming calls are always accepted if a B channel in the corresponding S_{2M} line is available, regardless of the trunk group. This is usually the B channel offered by the partner. If the remote system or the public network does not support B channel allocation, there is no guarantee that the call will be correctly assigned to the right trunk group.

HiPath 3000 Manager E allocates an S_{2M} link to the trunk groups; a route can be assigned to each line (B channel).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**–**
Hardware requirements	DIUN2	TMS2	TS2 / TS2R	–
Software requirements	V5.0 or later	V3.0 or later SMR-3	V3.0 or later SMR-3	–

Dependencies/Restrictions

Subject	Dependency/Restriction
IP networking	B channel allocation is not useful in IP networking because it is not possible at this time to assign incoming calls to the correct trunk group.

4 Features for External Traffic

4.1 Features for General External Traffic

4.1.1 Multi-Device Connections

Implementing features, see also Manager E Multi-Device Connection

Definition

HiPath 3000/HiPath 5000 can be operated on an ISDN multi-device connection (S_0 bus). This allows parallel operation with other ISDN devices located on the same connection. You can program a DID number up to 11 digits long (multiple subscriber number [MSN] of the multi-device connection).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	STMD3	STMD8	S_0 trunks	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure unique call assignments.
Trunk groups with PP and PMP	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups.

4.1.2 Multi-Device Connection (for U.S. Only)

Definition

The HiPath 3000 systems support ISDN data and video devices using an industry-standard ST interface. The ISDN terminal devices are connected to the system using the ISDN adapter or a port on an S0 interface card:

- STLS4 for the HiPath 3350 and HiPath 3550
- STLS4R for the HiPath 3300 and HiPath 3500
- STMD8 on the HiPath 3750 and HiPath 3700

The ISDN devices are assigned a call number for internal dialing and an 11-digit Multiple Subscriber Number (MSN) for incoming DID applications.

Each ST port consists of two 64 Kbps channels. Two devices can be connected to the ISDN adapter. Eight devices can be connected to an S0 port on an interface card. The devices connected on an S0 port share the 128 Kbps bandwidth for video and data calls.

Basic Rate Interface (BRI) Operation

In a BRI environment, each CO B channel is assigned a Special Profile Identifier (SPID) number and a Terminal Identifier (TID) for identification purposes from the Public Network. The SPID and TID received from the network provider must be associated with the call number assigned to the data or video equipment connected to the ST interface. If a system is equipped with three BRI trunks, the maximum number of ISDN data sessions is either three 128-Kbps sessions or six 64-Kbps sessions. Typically CACH (Call Appearance Call Handling) values or Phantom Directory numbers are required for voice terminals only. In some COs, CACH values or Phantom Directory numbers can be required for the ST data devices as well.

Due to the complexity of BRI configuration, it is recommended that ST applications be limited to 128 Kbps. The call number for each ST port must be associated with a Public Network SPID. This means that the number of 64-Kbps channels that can be called up is limited to the number of public-network SPIDs.

Refer to the Configuration Note for S0 Device Installation.

The STLS4 module is used also as a trunk interface in Europe. For subscriber applications, the receive and transmit leads must be reversed before connecting to the first device on the bus. This crossover is already performed in the ISDN adapter.

Usually the ST device is connected to an ISDN NT-1 adapter and the SPID-TID numbers assigned by the CO are programmed in the device. However, since the ST device is located behind the switch on an ST bus, the HiPath 3000 provide SPID-TID identification control. Each ST channel used by the ST device requires a Call Number for internal dialing. An MSN number also is required to enable the ST device to communicate with the HiPath 3000 system.

The protocol should always be set to ATT NI-1 in the ST device. The HiPath 3000 perform all protocol conversions.

Primary Rate Interface (PRI) Operation

In a PRI or CorNet-N environment, SPIDs, TIDs and CACH values are not required. Internal SPID/TID entries called Multiple Subscribers Numbers (MSN) are used by the ST devices for call setup. DID numbers must be assigned to each channel that connects to an ST device.

The numbers issued by the CO can be assigned as DID numbers. The DID number can contain between 1 and 11 digits. The DID numbers are required to set up incoming calls to the device.

Assign a call number to each No-Port station port used for the ST device. This call number can contain between 1 and 6 digits. The call number does not need match the DID number.

An MSN number must be assigned to the ST device for each B-Channel required for the application. The MSN numbers act as SPIDs for the ST device. The MSN number can be from 7 to 14 digits. If the entry is 9 to 14 digits, the last 2 digits are used as the TID number. The last 2 digits should be 00 for B channel 1, and they should be 01 for B channel 2 on each ST interface used.

It is suggested that the MSN number consists of the DID number, followed by 5 zeros, followed by a 2-digit TID number.

Related Topics

Section 11.1.2, “Multiple Subscriber Number (MSN)” on page 11-3

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	S0 board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.
Trunk groups with PP and PMR	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups.

4.1.3 Routes

Implementing features, see also Manager E Routes

Definition

The external trunks in the system can be combined into trunk groups by B channels. The order in which the trunk groups are seized can be linear (always the first free trunk) or cyclical (after the last trunk seized in the outgoing direction). An overflow trunk group can be configured for each of the trunk groups. If all the trunks in a trunk group are busy during a seizure attempt, the search for trunks continues in the overflow trunk group. The search is performed in the specified overflow trunk group only. If all the trunks are busy in this trunk group as well, no additional overflow attempts are made.

It is common practice to seize outgoing trunks starting with the highest numbered trunk, whereas incoming trunks will seize the lowest numbered trunks first. In the case of Key Systems, this reduces the risk of glare, or collision on loop start trunks.

A trunk group key can be assigned for these trunk groups. The key is for outgoing calls only. A maximum of 10 Trunk group keys can be configured on one station. Trunk group keys can appear on more than one optiset E or optiPoint 400/500 telephone. These keys can only be installed on display telephones.

Calls placed on Trunk group Keys are subject to COS toll restriction levels and rules.

The system can monitor the line for the presence of dial tone. If not present, the system releases the trunk, and an error message is generated and recorded. The display user is presented with the text Not possible and reselect the Trunk group key to seize another trunk.

It is possible to turn off the detection and set fixed delay; contact your second-level Service group if this is recommended.

A **route** is the path that a message takes from sender to receiver. This path consists of a group of external lines with a group-wide seizure code. When a user dials this code for the connection setup, the communication system seizes a free line that is assigned to the corresponding route. In general, all lines in a route are connected to the same remote system or to the central office (CO).

The external lines of the communication system can be grouped into a total of 16 routes (8 in Hicom 150 E Office Point/HiPath 3150, 3250), based on the B channel. The seizure algorithm of the directions can be configured as either cyclical or linear. Route overflow is available.

A route is assigned to every line (in the case of ISDN BRI, 2 B channels). A line cannot be assigned to more than one route. The standard configuration for all lines is Route 1. The CO call privileges assigned to the B channel determine the access rights available to even or uneven B channels which have been set up.

Non-switched MSI lines must be deleted via system administration.

Names can be programmed for the 16 (8) routes in order to ensure user-friendly operation.

In an LCR environment, this code is only used for display; seizure codes are programmed in the Dial plan. In the case of networking, the input is to be entered or deleted in accordance with the configuration of the remote system.

Prime line refers to the seizure of an external trunk without dialing a predefined CO code.

Operation

The user presses the trunk group key and receives a dial tone. The trunk number is displayed. If all trunks in the trunk group are busy, the corresponding LED will be lit. The LED also lights even if the trunk group has overflowed to another trunk group.

The user can put the call on Consultation Hold, transfer the call, place it in a Park location, or put it on station hold.

The trunk can be placed on hold. However, the user must use the Retrieve Line feature. When the user presses the Hold key, the display shows which line is being held; for example, Held on line.: xyz. To retrieve the held call, the user must be in an idle state. The user presses the Program/Service key, scrolls to and selects Retrieve Line followed by the line number xyz.

Alternatively, the user can dial the default access code *63 followed by the held line number; the user is reconnected to the held party. A Feature key can also be programmed on a user's telephone to retrieve a held line.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Routes	16 trunk groups with up to 72 B channels per trunk group		16 trunk groups, 64 B channels	8 trunk groups with max. all B channels per trunk group
No. of trunk group keys on optiset E or optiPoint 400/500	6		6	6

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog trunks	You must physically disconnect analog trunks from the trunk group.
optiset E or optiPoint, trunk group key	You can program up to 6 or 4 trunk group keys on an optiset E or optiPoint telephone. If all trunks in a trunk group are busy, its trunk group key lights up.
Overflow	If a trunk group is busy and overflow for this trunk group is entered in the system, the system continues searching in the overflow trunk group. If all trunks in this trunk group are also busy, no second overflow operation is performed.
Prime Line (Simplified dialing)	With simplified dialing, you can program trunks in different trunk groups. You cannot define an overflow from trunk group 1 to another trunk group.

4.1.4 Trunk Keys

Implementing features, see also Manager E Trunk Keys

Definition

On optiset E or optiPoint telephones, users can program trunk keys by B channel. This enables them to answer a call or seize a trunk by pressing the trunk key. The LED signals the trunk status.

LED	Meaning	Effect of pressing a key
Off	Trunk is free	Immediate seizure of trunk
On	Line is busy or has failed.	
Flashing slowly (750 ms on/ 750 ms off)	Trunk is on hold	The line on hold is reconnected and the connection becomes active again. A distinction is made between: • Exclusive call hold = the slowly flashing LED is only displayed to the station holding the call. • General call hold = the slowly flashing LED is presented to all stations at which the held trunk is programmed on this key.
Flickering (50 ms on/ 100 ms off)	Your own telephone is called via the line programmed on this key.	Immediate connection to the calling station via the trunk programmed here. Note: Multiple parallel waiting calls are signalized by the flickering of several trunk keys, provided that the respective trunks are programmed on those keys. The subscriber being called can select and answer a call by pressing one of the flickering keys, regardless of the call shown on the display.

Users can use the trunk keys for the following features:

- Call pickup
- Retrieve trunk on exclusive hold
- Retrieve trunk on common hold
- Answer calls
- Toggle between several different trunks

A Trunk key is used for receiving incoming trunk calls and placing outgoing calls on the selected trunks. A Trunk key represents an analog CO trunk appearance, a BRI link appearance, a T1 DS0 channel, or an analog E&M Tie line channel.

A Trunk key cannot be programmed on the same station that is using Call Keys to manage the trunk group associated with the trunk appearance.

A Trunk key can appear on more than one station. All stations with the appearance of the Trunk key can also ring on an incoming call, if they are programmed in a Call Group, otherwise they only have LED signalization.

A user can place a trunk appearance on Common Hold by pressing the Hold key and going on-hook. The trunk appearance will flash slowly at all other appearances of the Trunk key.

Calls placed on Trunk keys are subject to COS toll restriction levels and rules.

Trunk keys can be used in a Centrex environment. The system can cut through immediately to the Centrex CO to allow the user to hear if special tones, indicating Message Waiting. In this case, Dial Tone Detection must be turned off because the special CO tones are not recognized by the HiPath 3000 as dial tone.

Feature Interaction:

- **Call pickup:** An incoming call ringing on a Trunk key can be picked from another station via the feature Call Pickup - Group or via Call Pickup - Directed.
- **Retrieve trunk on exclusive hold:** A Trunk key is placed on exclusive hold at the station which put it on Hold by pressing another flashing Trunk key, which results in a Toggle operation. To retrieve the held trunk, the user needs only to press the flashing key.
- **Retrieve trunk on common hold:** Another user with the appearance of the same Trunk key, can retrieve a trunk call on Common Hold (Appearance flashing slowly) by pressing the flashing key.
- **Answer calls:** Any user with the appearance of the trunk can answer an incoming call on the Trunk key by pressing the flickering Trunk key.
- **Toggle between several different trunks:** If a user has an appearance of several Trunk keys on his or her telephone, the user can toggle between any of the trunks by pressing the desired Trunk key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another Trunk key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party is immediately recalled per the Consultation Hold procedure.
- **Call forwarding:** An incoming call appearing on a Trunk key can be forwarded by the station to another destination. If the forward destination does not have an appearance of the trunk, the user can handle the call via the dialog keys as a normal incoming call. If the forward station answers the call, the LED on all appearances of the Trunk key will be steadily lit.

  If the station has forwarded the external calls to a voice mail system, the original destination's station number is forwarded to the voice mail system.

Operation

If the default station templates are in effect, this feature can only be used on display telephones.

- **Placing a call:** The user presses an idle Trunk key. Simulated dial tone can be presented to the user until the trunk cuts through (See Routing Parameters -> Analog Trunk Seizure delay).
- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display shows the trunk group name. If caller ID is available, the user display will indicate the calling party's caller ID number. Calling party name is not available. The user presses the flickering key to answer the call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	UP0/E device			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

4.1.5 Call Keys

Implementing features, see also Manager E Call Keys

Definition

Users can program up to 10 call keys (together with multiple subscriber numbers outside of the U.S. and MUSAP keys in the U.S.) on an optiset E or optiPoint telephone. These keys are used for incoming and outgoing calls. The call keys are assigned to trunks virtually; that is, the trunks are not permanently assigned to a specific key (like trunk group keys). When performing an outgoing external seizure, users press a call key to seize a trunk group. When users connect without a call key, an available call key is automatically seized, depending on the trunk group. With incoming calls, an available call key corresponding to the trunk group is also assigned.

The call keys should be viewed as temporary trunk keys that allow quick access to the following features:

- Answering and signaling calls and recalls
- Toggle/Connect
- Cancel consultation
- Pickup

Operation

If the default station templates are in effect, this feature can only be used on display telephones.

- **Answering and signaling initial calls and recalls:** The Call key can also operate as a Loop key. That is, a user can have two or more Call keys on his or her telephone representing the same trunks. The first incoming call will be presented to the first idle Call key; the second call to the next idle Call key, and so on. The call can be transferred using the Consultation Hold function using a feature button or with the dialog keys. Unanswered calls or unretrieved parked calls recall the station on the Call key and can be answered again on the Call key (Common hold: still assigned to that Call key)
- **Toggle/Connect:** If a user has an appearance of several Trunk keys on his or her telephone, the user can toggle between any of the Call keys by pressing the desired Call key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another Call key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party immediately recalls per the Consultation Hold procedure.
- **Pickup:** An incoming call ringing on a Call key can be picked up from another station via the feature Call Pickup - Group or via Call Pickup - Directed.

  Conversely, if a user with a Call key on the telephone, picks a trunk call from another station, the trunk appears on the Call key.

- **Placing a call:** The user presses a Call key. The user is presented with simulated dial tone if LCR is in effect or, if not, CO dial tone.
- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display shows the trunk group name. If caller ID is available, the user display will indicate the calling party's caller ID number. Calling party name is not available. The user presses the flickering key to answer the call. The LED of the Call key remains lit.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	$U_{P0/E}$ device			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of call keys per optiset E or optiPoint 500 telephone	10	10	10	10

Dependencies/Restrictions

Subject	Dependency/Restriction
Trunk groups, busy state	The busy state is not displayed for the entire trunk group.
Transfer before answering, Automatic recall	The call key is reassigned if the internal destination is not reached following unscreened transfer and a recall occurs.

4.1.6 Transit Traffic

Implementing features, see also Manager E Transit Traffic

Definition

Transit traffic refers to external voice calls that are handled by the telephone system in the incoming and outgoing directions. External connections can be set up to either the central office or to a networked system.

It is possible to handle transit traffic both manually and automatically over digital trunks and analog lines with a backward release criterion. Transit traffic can also be processed on analog trunks without a backward release criterion (loop start) by using timeout control followed by automatic release (maximum time is 42 minutes). Transit traffic is needed in the following situations:

- Networked systems
- Trunk-to-trunk connections (including DISA)
- Transition from a private network to the public network and vice versa

Transit traffic is used in conjunction with the following features:

- Call forwarding (CF)
- Transfer
- Callback (CorNet and QSig networks; if supported on the trunk side, transit traffic can be used externally as well)
- Message waiting for central voice mail servers in CorNet and QSig (not for U.S.) networks.

External access from a remote node is not possible over HiPath 3550 or HiPath 3500 BRI trunks. Such calls are intercepted to the HiPath 3550 or HiPath 3500 intercept position.

Definition of Features Associated with Transit Traffic

- **Call forwarding:** A trunk-to-trunk connection is possible using call forwarding - no answer (CFNA) or call forwarding (CF) to an external destination. Care should be taken concerning the release capability of the trunks. Using LCR, an incoming call can also be forwarded (CF or CNA) to a CorNet-N link to a station in the remote node, to the Attendant in the remote node, to a voice mail system in the remote node, or rerouted to an external destination by the remote node. When calls from a HiPath 3000 are routed through a CorNet-N link to internal and external destinations, the CorNet-N channels must be split between these functions. In the case of a transfer to a remote voice mail system, the HiPath 3000 sends the originally called destination's station number to the voice mail to activate the proper answer message.

Always refer to the latest CorNet Configuration Note or the CorNet Sales Positioning Guide for the latest information.

- **Transfer:** It is possible for the user to transfer calls (screened and un-screened) to an external destination or to a remote node, via a CorNet link.
  The transfer can also be initiated by a voice mail call processing feature or by an IVR which automatically transfers, unscreened, a call to an external or CorNet destination.
- **Callback:** If Callback was activated by the user to a CorNet user in a remote node, the Callback will be activated the same as an internal callback activation (this feature is not available with connections to a ROLM 9005).
- **Message waiting for central voice mail servers in CorNet networks:** Message Waiting notification is possible from a remote voice mail system connected via CorNet links. In the case of PhoneMail, the SW version must be 6.3 or higher.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	S_0-/S_{2M} board			TLA board
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog trunk MSI	MSI trunks are automatically released after a programmable period (default: 310 seconds. A tone sounds 10 seconds before release). The time parameters only can be changed by using HiPath 3000 Manager E.

With administration via Manager E, it is possible to have trunk-to-trunk transit connections with transit flags as well as transit connections from trunks to tie trunks in the case of networks.
When the flag is set, toll fraud is possible if outgoing selection is enabled as a result of additional system configuration parameters.

Transit traffic is used in conjunction with the following features:

- Direct inward dialing
- Call forwarding
- Transfer
- Conference
- LCR

4.1.7 Translate Station Numbers to Names for System Speed Dialing

Implementing features, see also Manager E Translate Station numbers to Names for System Speed Dialing

Definition

With system speed-dialing calls, the name of the destination programmed in the system speed-dialing facility is displayed after outgoing dialing instead of the speed-dialing number. If the station number of an incoming call corresponds to a station number in system speed dialing, the name of the caller appears on the display.

This feature only applies to systems with ISDN trunk connections or with Analog Caller ID on the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300.

HiPath 3000 filters the access code in the system's speed dial table, however, the rest of the number must be an exact match to the incoming number for this feature to function.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of speed-dialing destinations	1000	1000	1000	300

4.1.8 Message Waiting Indication (MWI) at the Trunk Interface

Definition

You can use this function only if the public exchange supports it.

You can activate and delete the “Mailbox key”.

This function supports sending (service menu or code) from the idle, ringing, busy, and talk states and supports the receiving of messages.

On the receiver side, telephones with a display show the message “Please call back”.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk connection	Digital trunk connection		
Software requirements	V5.0 or later	V3.0 or later SMR-3	V3.0 or later SMR-3	V3.0 or later SMR-3

4.2 Features for Incoming External Traffic

4.2.1 Call Allocation

Implementing features, see also Manager E Call Allocation

Definition

Within call management, two call allocation tables are provided for incoming calls on analog or digital trunks. One of these tables is evaluated for day service and the other for night service. These tables define the station to which a call should be forwarded. This feature can also be used to assign a trunk to a specific station.

The "Ringing Assignments" screen in HiPath 3000 Manager E is used to determine which stations (or groups) are assigned to each of the system trunks. Each port is assigned a call number in the Stations/Groups: Line Assignments table.This call number can be the internal call number of an active or an inactive station or group. Different call numbers can be assigned for day and for night. The call number in this table tells the system that when a call comes in through that port, it should be signaled, not at this station, but according to the Call Destination List for this station.

Refer to Section 3.1.3, “Call Management (CM)” for details.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
DTMF DID	An analog call may be released before call forwarding—no answer is completed. This is due to the permanent timers that prevent trunks from becoming frozen.
Call allocation table	A number of calls can be waiting simultaneously at the stations entered in the call allocation tables.

Subject	Dependency/Restriction
Intercept	Calls are intercepted if they cannot be switched because there are no available stations.

4.2.2 Call Connection

Definition

Users can administer a personal list of internal station numbers that are also called when their stations are signaled.

In this list, users can also enter their own station numbers. They might do this, for example, if a station number is permanently routed to another station (executive/secretary).

This feature is available to all types of telephones.

A feature button can be programmed on the optiset E or optiPoint 400/500 telephones to activate/deactivate the feature. More than one group ringing button can be programmed on one telephone to allow for different variations. More than one button can be activated at one time, however, the maximum number telephones to ring cannot exceed five.

The Forwarding screen is one of three screens in the System Status pathway in HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the Call Forwarding screen to see if a station has a Group ringing activated or if it is part of a Ring Group.

This feature can be activated/deactivated via a DISA connection by its own station user or for another user with the aid of the feature Associated Services.

Group ringing can be invoked during a conversation by following the above procedure using the Program/Service key.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is Ringing group in the button menu. When the feature is active, the LED is lit.

The station flag “no group ringing on busy” determines which stations in a call ringing group receive a call when the primary telephone (the one activating the feature) is busy, and which ones do not.
If the same station or smartset is in the ringing group of more than one master telephone, the flag applies to all calls signaled at this station or smartset.

If the flag is not set, group ringing always takes place, provided that the station in the call ringing group is available (default).

If the flag is set, group ringing depends on the availability of the primary telephone:

- If the primary telephone is available, group ringing takes place immediately
- If the primary telephone has activated call waiting, group ringing takes place after a 5-second delay.
- If the primary telephone cannot receive a call, or if call waiting is inactive, group ringing does not take place.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Automatic recall System search Callback	Group ringing is not carried out with an immediate recall (operator error), system search, or callback.
Call forwarding (CF)	If the station that activated group ringing has also activated call forwarding, group ringing is not carried out.
Do Not Disturb (DND)	If the station in the group ringing group has activated DND, group connection is not carried out at that station.
Timed reminder	An active timed reminder does not follow group ringing.
No group ringing on busy	If the flag is set, no group ringing will take place if the station is busy.

4.2.3 Night Service

Implementing features, see also Manager E Night Service

Definition

Night service forwards all calls that reach the attendant console to a predefined destination. Users can define either an individual station or a group as a destination. Users can also use a central bell in conjunction with night service to alert any personnel (night shift) to night calls.

HiPath 3000/HiPath 5000 distinguishes between day service, fixed night service, and variable night service.
In the case of day service and fixed night service, incoming external calls follow the tables and call destination lists entered in CM for day service and night service, regardless of the station type.
With variable night service to a voice station, calls follow the call destination lists for fixed night service and are then intercepted by the variable night station. All other call destinations for fixed night service are considered to be invalid and are replaced by the variable night station.
As a result, the system behaves in every respect in the same way as it would for call forwarding to a night destination.

A list for night service controls external DID calls. This method is also known as assigned night service because it enables users to assign different night destinations to individual lines.

The switchover between day and night service is done on the system telephone by pressing a system telephone key that has been programmed for this purpose or by entering a code for the switchover. When the communication system is switched to night service mode, all stations use the night service table. Furthermore, the handling of incoming calls is set to "Night" in the allocation table. When the communication system is switched to day service, all stations use the day service table. Furthermore, the handling of incoming calls is set to "Day" in the allocation table.

Night Service

The Night Service function defines how calls are handled when the system is placed in night service mode.

Up to five stations are authorized to switch the system to night service. This list can be changed using HiPath 3000 Manager E (*Authorized Stations for Night Service* list).

An Intercept station can also be defined for Night Service. This station does not need to be the same station called during Night Service. This intercept position can be an individual station or a group. Separate intercept positions can be entered for day calls and for night calls. The Night Intercept position will intercept the same type of calls as the Day Intercept position. The Day Intercept position can be programmed to intercept any or all of the following types of calls:

- free
- busy

- wrong number
- incomplete
- automatic recall

System Administration assigns which trunks ring into which station (See Call Management) in Day mode and in Night mode. When the system is switched to night service, the system checks against the *Call Allocation - Night* list in Manager T (*Ringing Line Assignments* list in HiPath 3000 Manager E) to see where to send the incoming call. The destinations can be either an individual station or a group.

Users can also use a central bell in conjunction with Night answer to alert any personnel (night shift) to night calls. In Call Management, an additional station can be called by means of the *Additional call number* entry shown as *Second Target* in *Call Destination Lists* in HiPath 3000 Manager E. This entry supports the *common ringer* function. An actuator (relay) or an additional extension at which a call is also to be signaled is entered here. The last field *Type* defines when ringing assignment takes place (immediate or after CF timeout).

The night bell (instead of a telephone) may be physically connected to the station interface, in which case, the night bell can be answered by dialing the station number or by call Pick up, if so configured.

An external night bell adapter may be required to prevent excessive current from damaging the station interface.

A Night answer station can be any type of telephone, providing their COS allows, at minimum, for incoming calls.

When in Night mode, all stations use the Night COS table. The table, similar to the Day COS table, also has 5 classes to choose from. (Refer to Section 4.3.10, “Configurable Toll Restriction” for details).

A variable night station (universal night answer position) can be specified. The variable night station can be configured by any of the stations authorized to place the system in Night Service mode.

This feature can be activated/deactivated via a DISA connection by the station user.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is *Night answer on* in the button menu. During programming of the button, it can be configured to activate the default destination(s) or a variable destination. The variable destination can still be overwritten by the access code. In either case, the LED on the key remains lit.

Night Service Security

To prevent unauthorized deactivation of Night Service (returning the system to its normal day COS toll restriction scheme), the authorized user can activate Individual Lock Code at the telephone.

If there are several authorized stations, they must all activate Lock Code to ensure security.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding (CF)	Calls follow call forwarding if activated on the night station.
Night station	An intercom only phone cannot be entered as a night station.
Trunks	Variable night service makes no distinction between the individual trunks; that is, calls on all trunks reach the night station.

4.2.4 Direct Inward Dialing

Implementing features, see also Manager E Direct Inward Dialing

Definition

With direct inward dialing (DID), an incoming call can reach a station without intervention by the attendant console.

This feature is handled in call management. The internal and external numbering systems are defined in the numbering plan.

Public Networks require that DID calls to a station that is out of service, or is otherwise unreachable (for example, do not disturb) must be intercepted to a station, an answering position, or to an announcement device. It is therefore necessary to program intercept destinations for DID stations.

In HiPath 3000 Manager E and Manager T, the DID number corresponding to an internal call number can be up to 11 digits in length.

For an incoming call on an ISDN PRI line, the PBX number is blanked out to the left of the incoming call number. The remaining portion of the call number is interpreted by the system as a DID number.

DID calls can appear on MUSAP keys. Refer to Section 4.2.5, “Selective Seizure of a DID Number Using a MUSAP Key”.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	S_0 trunk board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Entrance telephone, MOH, Room monitor speaker telephone type	These stations cannot be reached from the outside by direct inward dialing.

4.2.5 Selective Seizure of a DID Number Using a MUSAP Key

Definition

For users to seize one of the system DID numbers for outgoing calls, they must either use a procedure or configure a multiple station appearance (MUSAP) key. This key is assigned a DID number in the system. However, pressing this key is not sufficient for seizure. The trunk group, trunk, or Prime Line must be suffix-dialed for seizure to occur.

For incoming calls, the MUSAP key functions as a call key. The LED is activated in the same way as for trunk keys, call keys, or DSS keys, depending on the status of the trunk key to which it is connected. Features such as toggle and consultation hold are possible.

For outgoing calls, the MUSAP key functions as a call key after the external seizure is completed.

A MUSAP key is used as a target location for incoming DID calls from the public network. The key can also be used as a target for incoming calls from a CorNet location. If the station is assigned a MUSAP key, the DID number associated with the key is sent to the ISDN Public Network on BRI and PRI outgoing calls.

Up to 10 MUSAP keys can be programmed on the same station to support rollover buttons for additional calls to the same DID number. A maximum of 10 MUSAP and/or Call Keys can be programmed on an optiset E and optiPoint 500 telephone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk board	Digital trunk board		
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of MUSAP keys per telephone	10	10	10	10

Dependencies/Restrictions

Subject	Dependency/Restriction
MUSAP	MUSAP keys do not seize trunk groups directly. After you press the key, you must dial the trunk group separately.

4.2.6 Signaling of Direct Inward Dialing Numbers for Incoming Calls

Implementing features, see also Manager E Signalling of direct Inward Dialing Numbers for Incoming Calls

Definition

When an internal station receives an external call, the direct inward dialing (DID) number that the caller originally dialed is displayed. A variety of acoustic signaling methods are also available to signal the call. The LED assigned to the appropriate MUSAP key (see Section 4.2.5) also signals the call.

Three different types of acoustic signaling are possible depending on the telephone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	$U_{P0/E}$ station or analog station			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Signaling	Not for S_0 stations (not for U.S.).

4.2.7 Direct Inward System Access (DISA)

Implementing features, see also Manager E DISA (Direct Inward System Access)

Definition

Direct inward system access (DISA) enables users to use features in the HiPath 3000/HiPath 5000 system via an external connection. External callers must enter a password to gain access to the system. They can then use certain system features just like an internal user. They can also set up an outgoing external seizure via the incoming external connection.

Users can use the following features via DISA:

- Direct services for internal stations:
  Send message texts, relay on/off, night answer on/off, advisory message on/off, group ringing on/off, lock code on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.
- Associated services:
  Advisory message on/off, group ringing on/off, lock code on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.

An internal station can also be reached via DISA. In the case of a fixed numbering plan (such as in France), virtual networking is also possible.

The DISA access line can be configured as dedicated, or it can be accessed during day or night operation; these parameters are set in the General Flags of Lines/Networking/Parameters tabs in HiPath 3000 Manager E; in the DISA day/night field, code receiver (CR) parameters can be configured for each line.

One of the following options may be selected:

- Line always has CR connected
- Line has CR connected during day only
- Line has CR connected during night only
- Line has no CR connection

The DISA trunk is released at the completion of each function/feature. The user must reenter the system if another function needs to be accomplished.

The stations authorized to access the system via DISA must first be configured in System Administration.

A DISA trunk can be a DID number or a LS/GS trunk. If the DISA trunk is a DID number, this number is programmed in System parameters. The field allows up to 12 digits. If the trunk is LS/GS, the trunk is programmed in the Ringing Assignments.

A password is required to log onto the system. This password consists of the internal station call number and the lock code PIN. The password entered is only confirmed after a timeout or by pressing the # key. This selection is system-wide and is done in the System Parameters.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog trunk Night service	Analog trunks can be programmed for DISA access. They can be used as normal analog trunks during the day and then switched over to DISA mode when the night answer function is activated.
Call data output	DISA calls are specially marked in call data output.
System speed dialing	The system speed-dialing memory can be used via DISA.
Trunk	The trunk is released each time you activate the service.

4.2.8 Intercept Conditions

Implementing features, see also Manager E Intercept Conditions

Definition

Intercept forwards incoming calls to another destination. A call is intercepted if the original destination is invalid or if limitations exist.

Users can specify the following as intercept destinations:

- PC AC
- Stations
- Hunt group
- Announcement (external announcement device)

If an intercept position or AC is configured in the system, calls are routed to this intercept position during an intercept. If an intercept position has not been configured, intercepted calls are signaled at the station that has a call assignment for the intercepted trunk.

During intercepts, call management is entered using the intercept station as the basis. If the intercept position cannot be reached, the call is signaled at a night bell, if entered, or the call waits in a queue at the intercept position.

Users can activate the intercept feature under the following conditions:

- **Intercept no answer**

  If there is no answer, the call follows the entries in call management. If the end of the CM elements is reached, the system determines whether or not an intercept after timeout should occur. Calls are intercepted if they cannot be switched because there are no available stations.

- **Intercept busy, if no additional forwarding is possible.**

  If a station is busy, the system determines whether or not call waiting is possible.

  If call waiting is not possible (signaling security or intercept criterion), the call follows the entries in call management. If the call cannot be signaled at any station, the system determines whether the call should be intercepted or released.

  In general, intercept busy only applies to the first call, not to switched or outgoing connections. A recall of an external station is not immediately intercepted when the destination station is busy; instead, call waiting is activated.

- **Intercept if incomplete or invalid number dialed**

  When an incorrect station number was dialed, the system determines whether the call should be intercepted or released. Calls are always intercepted with pseudo-DID.

- **Intercept if no number dialed**

  If no station number is dialed within a timeout, the system determines whether the call should be intercepted or released. If an intercept position has not been configured, the interception follows the call assignment per trunk.

- **Intercept with Serial FWD**

  It is not possible to chain calls for forwarding; an attempt to initiate this procedure is rejected on activation. For example: if a station has activated external call forwarding and the call destination has also forwarded its calls, you have a chained calls situation. This is not allowed by the system. If this flag is turned on, these calls are intercepted.

- **Codelock Diversion**

  If the lock code for a station is active, and a trunk group code is dialed from that station, the call is immediately forwarded to the intercept destination. The Codelock Diversion function is set individually for each station through the Flags screen in the Set up Station Parameters.

One intercept position can be configured for Day operation. During Night Service, the same destination or a different destination can be configured as the intercept position.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Hunt group	Intercepts cannot extend beyond a hunt group; the call is forwarded to the first hunt group station and always remains in the hunt group.
Release	Calls with the service ID data service (ISDN message) are released, not intercepted.
Incomplete dialing	Not evaluated in the case of a central intercept position.

Subject	Dependency/Restriction
Tenant system	When a tenant service is configured, users can only configure intercepts on a cross-system basis. This means that intercept no answer (for example) applies to all system users.

4.2.9 DTMF DID

Implementing features, see also Manager E Dual-Tone Multifrequency Direct Inward Dialing

Definition

This feature enables users to use direct inward dialing (DID) on non-DID trunks such as analog trunks. This type of pseudo-DID is achieved by suffix-dialing dual-tone multifrequency (DTMF) digits.

External calls that reach the system via this feature are released after a timeout if they are not answered. This prevents analog trunks from freezing up. The timer Release if no dialing is activated when the trunk answers. Default time is 10 seconds.

An announcement lets callers know that they can use DID. A customized announcement is available in the system. This feature requires an external announcement device.

Operation

The user calls the trunk number flagged as DTMF DID. The system answers. No tone is presented to the user. The user dials the station number and is connected. If the call is not answered within 60 seconds (not variable) the trunk is automatically released.

If a recorded announcement has been configured for callers, the caller can be presented with an audio message and can start dialing. During the announcement a Code Receiver is on line to detect dialing.

The announcement device is connected to an analog port and must be able to present an open loop to the system at the end of the message.

Refer to Section 4.2.10, “Announcement Before Answering” for more information.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Analog trunk board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
DTMF DID	If the incoming call is not answered within 60 seconds, the trunk is released.
Intercept	The trunk is released 30 seconds after the call is intercepted.

4.2.10 Announcement Before Answering

Implementing features, see also Manager E Announcement Before Answering

Definition

This feature plays an announcement for external callers from an optional external announcement device. This applies to both analog and digital trunks.

The announcement can be played either parallel to ringing or only if the call is placed in the announcement device queue. The announcement begins after a programmable period and can be heard by several callers simultaneously.

Users can configure an announcement before answering to relieve an intercept station. For this purpose, users connect an announcement device, which is capable of answering an incoming call and forwarding it to a specific station. This feature is configured with call management.

Users must configure the subscriber ports that connect to announcement devices as answering machines. If the announcement device is connected to an analog port and it must be able to present an open loop to the system at the end of the message.

The UCD feature can also be used to start the announcement, but only after a programmable period. The announcement can be heard by several callers simultaneously.

The feature can be used to present callers with a company message before being answered, for example, by the Attendant or by a group.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	TMEW2 or analog port	TIEL or analog port	Analog port	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
No. of callers who can hear an announcement simultaneously	32	32	32	32

Dependencies/Restrictions

Subject	Dependency/Restriction
Group/station	If the announcement port is entered as a call forwarding—no answer destination, the appropriate announcement is played if the group or station is busy. The call is then forwarded to the next station or the programmed intercept criteria apply.

4.2.11 Call Collect Barring Per Trunk (for Brazil only)

Implementing features, see also Manager E Call Collect Barring Per Trunk

Definition

This feature provides for automatic release of incoming collect calls; users can configure it individually for each analog trunk (loop start). If this feature is enabled for a trunk, the system opens the loop for 2 s (default value) one second (default value) after an incoming call is accepted. This ensures that collect calls are released in the network, while other calls continue unaffected.

Not all providers guarantee that the called party will receive the information element for identifying a collect call in the ISDN-D-channel protocol. Collect calls are not possible in this case.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**–**
Hardware requirements	Analog trunk (loop start)			–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	–

Dependencies/Restrictions

Subject	Dependency/Restriction
Call collect barring per trunk	Only available in Brazil. This setting is ignored in all other countries.

4.2.12 Call Collect Barring per Station

Implementing features, see also Manager E Call Collect Barring Per Station

Definition

This feature allows the automatic release of incoming collect calls. Users can configure it separately for each station, even in combination with functions such as call forwarding, call pickup, or intercept.

Users can also program call collect barring system-wide. This applies if a caller dials a hunt group instead of an individual station or misdials a number.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**–**	**x**	**x**	**–**
Hardware requirements	–	TMAMF	TMAMF (HiPath 3550 only)	–
Software requirements	–	V1.0 or later	V1.2 or later	–

Dependencies/Restrictions

Subject	Dependency/Restriction
Call collect barring per trunk	Neither the system-wide parameters for call collect barring nor the setting made for the stations affect trunk calls (analog trunks).
Call collect barring per trunk	Only for MFC-R2 countries that support this feature.

4.2.13 Analog Direct Inward Dialing with MFC-R2

Implementing features, see also Manager E Analog direct Inward Dialing MFC-R2

Definition

An MFC-R2 trunk is an analog trunk interface for direct inward dialing that allows external callers to reach extensions directly without the assistance of an attendant.

The system supports MFC-R2 (SMFC) as the default setting, MFC-R2 with caller ID, tone dialing, and dial pulsing. It is not possible to use tone dialing and MFC-R2 (with or without caller ID) simultaneously.

To implement the CLIP feature for incoming calls, you can enter the calling party number when MCF-R2 (SMFC) is active. When receiving calls for which the trunk supplies this information, the calling party's number appears on the screen of the called party's telephone.

This feature must be configured for each trunk (signaling method parameter set to MFC-R2 with caller ID).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**–**
Hardware requirements	TMAMF	TMAMF	TMAMF (HiPath 3550 only)	–
Software requirements	V5.0 or later	V1.0 or later	V1.2 or later	–

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog direct inward dialing with MFC-R2	Available in Brazil, India, Malaysia, Singapore and ATEA countries only. This setting is ignored in all other countries. The ATEA countries listed below require country initialization with the international country code = 21. In addition, parameter PAR_05 (system status - system-wide - boards: MFC/R2 table) must be set in HiPath 3000 Manager E expert mode. • Egypt = 05h (default) • Nigeria = 06h • Oman = 07h • Saudi Arabia = 08h • Syria = 09h • Tunisia = 0Ah • United Arab Emirates = 0Bh
Caller ID	Displayed exactly as received from the trunk. The system does not add any digits (such as trunk access codes or discriminating digits) or remove any digits (such as the local area code supplied by the central office). Likewise, the displayed station number cannot be redialed directly and does not appear in the caller list.
Caller ID	Not available in Singapore.

4.2.14 Centralized Attendant Service CAS (for U.S. only)

Definition

This feature allows for the conservation of T1 TIE line trunks when the attendant at a center PBX system answers a call that originated at the store PBX (branch) and who's destination extension is also at the store PBX. Without the CAS feature, this type of scenario would force the system to use 2 T1 channels for every call that was transferred back to the branch. CAS will conserve the T1 channels by releasing the T1 channel after the call is transferred so that no T1 channels are in use for the duration of the call after transfer.

The typical CAS application for a Federated store consists of the CAS store PBX (branch), the CAS center PBX (center) and a minimum of two tie lines that function as release link trunks RLT.

The typical RLT is a channel on a T1 card in the branch PBX that is mapped in a private network to a CAS center to be answered by a pool of operators.

A typical store (branch PBX) would have a T1 card with the first 8-12 channels mapped as tie trunks to one hub to carry standard tie line traffic. 2 or more of the remaining channels on the same T1 card are mapped as RLT's.

Example for an incoming call: A customer calls the branch PBX on the main DID number. The branch PBX then routes this DID call to a RLT. The RLT carries the call to the CAS center and the CAS operator answers the call. The operator finds out what our customer is calling for and then transfers the call to the appropriate extension in the branch PBX.

If all RLT's are busy then the call will queue. The caller will hear a recording all operators are busy please hold. When a RLT becomes idle then the queued call hits the RLT.

The transfer process consists of:

1. The CAS center operator hits the „CAS flash" key after have talked to the customer and found out which extension number to transfer the call to.
2. The CAS center PBX transmits a „hook switch flash" over the RLT.
3. The branch PBX recognizes the „hook switch flash" and puts the DID trunk on hold and gives dial tone back to the CAS operator.
4. The CAS center operator dials the destination extension number.
5. The branch PBX receives the extension number and starts to ring the phone.
6. At this point the CAS center operator can
   - stay on the call and wait for answer and do a supervised transfer, or
   - release the call and let the transfer finish as unsupervised transfer.
7. When the CAS operator releases the call the RLT drops, the branch PBX finish's the transfer.

8. The DID trunk is directly connected to the destination extension.
9. The RLT is idle and ready for the next call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**–**
Hardware requirements	DIU2U	TMST1	TST1	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	–

Dependencies/Restrictions

Subject	Dependency/Restriction
CAS store PBX (branch)	HiPath 3000 supports the CAS store PBX (branch) of the application.
CAS center PBX (center)	Support for the CAS center PBX (center) of the application is supplied by another type of PABX (e. g. Rolm 9005 or a Lucent switch) that supports the center where the attendants are located in the application.

4.3 Features for Outgoing External Traffic

4.3.1 Number Redial

Implementing features, see also Manager E Number Redial

Definition

Each time users place an outgoing call, the dialed number is stored. On optiset E or optiPoint telephones **with** displays, the system stores the last three numbers dialed.
To retrieve a specific number and use it to set up another call, press the Redial key.
Press the key once to dial the last number dialed.
Press the key twice to dial the next-to-the-last number dialed.
Press the key three times to dial the number that was stored the longest.
On optiset E or optiPoint telephones **without** displays, the system stores only the last number dialed.

For V1.2 and later, the system also uses the last number redial memory to store account codes ACCT that were entered. This is true only if the appropriate system-wide flags are set.

Last Number Redial

This feature applies only to non-display optiset E or optiPoint 500 models; however, it uses the same feature key (Redial) as the Expanded Redial feature for display telephones.

Only external calls are saved. Every new outgoing call overwrites the previous number stored. This is also true if System or Station speed dial is used. When using LCR access, only the number dialed by the station is stored in the LNR memory.

A call to a user in a networked system over a CorNet link is stored in LNR memory. An external call routed via CorNet to a trunk in another node is also stored.

This feature cannot be invoked if Lock Code has been activated.

Each time users place and dial an external destination, the number is stored. If the destination was busy or not reachable, users can press the redial key to redial the same number.

This feature can only be invoked from the Redial key. No feature access code is possible.

Expanded Redial

This feature applies only to display optiset E or optiPoint 500; however, it uses the same feature key (Redial) as the Last Number Redial feature for non-display telephones.

The system stores the last three external calls dialed by a display telephone. The expanded redial memory operates in a first-in-first-out (FIFO) manner; that is, the fourth external call number placed from that telephone is placed at the top of the redial table, and the oldest call is removed from memory, and so on.

Only external calls are saved. This is also true if System or Station speed dial is used.

A call to a user in a networked system over a CorNet link is stored in LNR memory. An external call routed via CorNet to a trunk in another node is also stored.

This feature cannot be invoked if Lock Code has been activated.

Any post-dialed digits beyond the initial destination, (for example, digits sent to a connected voice mail system) are not stored in expanded redial memory. In the case of a call routed through LCR, only the number dialed by the station is stored.

This feature can only be invoked from the Redial key. No feature access code is possible.

To reach the last number dialed, the user presses the Redial key once, and after a brief delay the number is dialed. Alternatively, the user can view the last three entries by pressing the Redial key successively and selecting the number to be redialed.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max length of stored number	25 digits + trunk access code			
Maximum number of entries	3	3	3	3

Dependencies/Restrictions

Subject	Dependency/Restriction
LNR	DTMF signals are not considered dialing information and are not stored. This does not apply to mobile telephones, which store DTMF signals in the internal redial memory.

Subject	Dependency/Restriction
LNR	After CO through-connect to the initial destination, further post-dialed digits are not stored.
Code lock	You cannot use redial if the lock code is active.
Internal calls	Internal calls have no effect on the redial memory.
System speed dialing	Speed-dialing numbers overwrite redial memory.
Telephones without displays	Only the last number dialed can be stored.

4.3.2 System Speed Dialing

Implementing features, see also Manager E System Speed Dialing

Definition

Users can store frequently dialed station numbers in system memory. For convenience, the system uses a short code to represent each station number so that the user does not need to dial the complete number.

Speed-dialing numbers are predefined in the system. Users can dial the codes from any subscriber station that is assigned to a system speed dialing group.

Use the redial key or the pound (#) key to program a dial pause and DTMF changeover.

- Only external calls can be stored.
- A name can be associated with each destination.
- This feature cannot be invoked if Lock Code has been activated.
- System Speed Dial overrides the COS Toll Restriction rules.
- System Speed Dial feature is system-wide and cannot be split, for example in the case of Tenant Service.
- The default access code is *7 followed by the index number (speed-dialing number).
- A feature button can be programmed on an optiset E and optiPoint 500 telephone. The button simulates the dialing of the access code (*7). The user is then prompted (in the display) to enter the index number (speed-dialing number).
- Suffix-dialing is also possible:
  - Manual suffix-dialing
    By selecting the access code (*7) and entering the index number (speed-dial number) the user can select additional numbers. These are added to the station number saved in this index and dialed.
  - Automatic suffix-dialing (V4.0 SMR-9 or later)
    When configuring system speed dialing it is decided whether only entered station numbers are sent out or if there is an automatic suffix-dialing option. To enable automatic suffix-dialing, a separator ("–" key) must be entered when saving a system speed dialing number. When a system speed dialing number is dialed using separators, the numbers before the separator are dialed first. The following numbers are temporarily stored and the timer is started. If a suffix has not been manually dialed before the specified time expires, the temporarily stored numbers are automatically dialed.

Example: SSD = 722–0
If the station does dial a DID (manual suffix-dialing) after selecting the SSD and before the specified time has expired, 0 is automatically dialed (automatic suffix-dialing).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Speed-dialing entries in the system	1000	1000	1000	300
Max. length of SSD entries	25 digits + 6-digit trunk access code		25 digits	25 digits
Max. no. of characters per name	16	16	16	16

Dependencies/Restrictions

Subject	Dependency/Restriction
External station numbers	Speed-dialing destinations can contain external station numbers only.
External station numbers	The external station number must include the trunk group or seizure code.
Translation of station numbers to names	You can assign a name to each speed-dialing destination.
Tenant system	If a tenant service is implemented using toll restrictions, the system does not check whether trunk seizures are authorized. If speed-dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should only implement tenant service via ITR groups.
Entrance telephone	The entrance telephone cannot access speed-dialing numbers.

Subject	Dependency/Restriction
Manager T	When using Manager T, first enter the index number (speed-dial number) and then the relevant name. The name of a specific index can only be entered if a number has been previously assigned. Names cannot be entered on devices with two-row displays.
Disallowed digits	Manager T and HiPath 3000 Manager E both check the first digit(s) of the speed-dial number you are programming against the default or current digits used in your database for external access codes. For example: entering the speed dial number 71 510 555 1212, may be disallowed if the digits 7 or 71 or 715 are not CO access codes.

4.3.3 System Speed Dialing in Tenant Systems

Implementing features, see also Manager E System Speed Dialing In Tenant Systems

Definition

This feature lets you select specific speed-dialing destinations, depending on the internal traffic restriction (ITR) groups. To do this, you can assign a range of speed-dialing numbers to internal traffic restriction groups using HiPath 3000 Manager E or system administration.

When a user dials a speed-dialing number, the system identifies the ITR group for the number, which determines whether the user is authorized to dial this number. If not, an error message appears and the dialing attempt is rejected.

The speed-dialing number ranges can overlap in the ITR groups.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Speed-dialing entries in the system	1000	1000	1000	300
Max. length of SSD entries	25 digits + 6-digit trunk access code		25 digits	25 digits

Dependencies/Restrictions

Subject	Dependency/Restriction
External station numbers	Speed-dialing destinations can contain external station numbers only.
External station numbers	The external station number must include the trunk group or seizure code.
Translation of station numbers to names	You can assign a name to each speed-dialing destination.

Subject	Dependency/Restriction
Tenant system	If a tenant service is implemented using toll restrictions, the system does not check whether trunk seizures are authorized. If speed-dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should only implement tenant service via ITR groups.
Entrance telephone	The entrance telephone cannot access speed-dialing numbers.
ITR groups	You cannot enter more than one speed-dialing number range for the same ITR group.
ITR groups	By default, all speed-dialing numbers are assigned to ITR group 1.

4.3.4 Station Speed Dialing in System

Definition

The user can create a separate speed-dialing list for frequently dialed numbers.

Users can enter external numbers in the system database. Access depends on the station's dial-up access rights. Users must enter the trunk group code before the station number.

There is only one list of maximum 10 numbers per telephone. The HiPath 3000 systems have a pool of dial entries which is shared with the feature Repdial. The system does NOT dedicate 10 Station speed dial entries per telephone. Any unused entries remain in the entry pool and can be used by other stations. It is therefore possible that a station user may not be able to program an entry on the telephone even though not all entries in the list have been used. This could indicate that the system pool of entries has been fully used up.

All types of telephones have access to this feature.

Station speed-dial numbers are stored in the system but must be entered by the individual user from the telephone. System Administration cannot enter these numbers for a user. Only external calls can be stored. A name can be associated with each destination.

This feature cannot be invoked if Lock Code has been activated.

Use the Redial key or the pound (#) key to program a dial pause and a DTMF changeover function.

Station speed dial is constrained by the COS toll restriction rules.

The default access code is *7 followed by the index number. The abbreviated station speed-dial numbers are therefore: *7*0 through *7*9.

A feature button can be programmed on an optiset E optiPoint. The button simulates the dialing of the access code (*7). The user is then prompted (display telephone) to enter the index number. This is the same button used to dial the access code for System speed dial.

The trunk group code must be entered before the station number. Names cannot be assigned to Station speed dial numbers.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum number of station speed-dialing entries per station	10	10	10	10
Maximum length of station speed-dialing entry	25 digits + trunk access code			
Maximum number of speed-dialing entries in the system	2000	2000	2000	300

Dependencies/Restrictions

Subject	Dependency/Restriction
Telephones without displays	Following station number entry, telephones without a display must wait for the confirmation tone.
Analog telephones (with DP), S_0 stations	Station speed dialing is not possible.
Internal station numbers, features	You cannot store internal station numbers and features in the station speed-dialing list.
optiset E or optiPoint telephones	In the case of optiset E or optiPoint telephones, users can store station speed dialing using codes or the telephone's programmable keys.
Repdial keys, station speed-dialing memory	Station speed-dialing destinations can be assigned until station speed-dialing memory in the system is exhausted. Speed-dialing memory is used for both repdial keys and station speed-dialing destinations.
Rotary dial analog telephones	Station speed-dialing is not possible.

4.3.5 Trunk Seizure Type and Simplified Dialing

Implementing features, see also Manager E Trunk Seizure Type and Simplified Dialing

Definition

HiPath 3000/HiPath 5000 systems permit trunk seizure via the trunk keys or call keys on an optiset E or optiPoint telephone.

Trunk seizure is also possible from any telephone using the trunk or trunk group codes. To seize the second trunk using a trunk or call key, Prime Line must be active and a second trunk group assigned.

Trunk seizure via trunk group code is not possible by entering the trunk group code and pressing the trunk group key.

When the system receives a seizure request, it searches for an available trunk in the trunk group. If a trunk is available, it is seized.

Simplified dialing

The Simplified Dialing feature is a system-wide feature that allows users to dial directly to external destinations without the use of Trunk or Trunk Group keys. The external access code is automatically dialed by the system. Only one outgoing Trunk Group is possible with this arrangement. To dial internal stations, the user must first press the Internal key and dial the station number.

When this feature is NOT active in the system, the reverse operation is true; that is, internal stations can be dialed directly, while outside connections require a trunk, trunk group key or an access code.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Trunks	You must use system administration to cancel nonexistent or physically disconnected trunks.
COS changeover	If you activate a lock code, you cannot seize a trunk.
Entrance telephone	You cannot seize a trunk from an entrance telephone.
Hold/park	An undialed or partially dialed trunk cannot be parked or placed on hold.
Simplified Dialing (Prime Line)	optiset E entry and optiset E basic, and optiPoint 500 entry cannot use this feature.
Simplified Dialing (Prime Line)	With simplified dialing, you can program trunks in different trunk groups. You cannot define an overflow from trunk group 1 to another trunk group.

4.3.6 Block Dialing

Implementing features, see also Manager E Block dialing

Definition

With en-bloc dialing, the digits dialed are combined to form a block, stored in the system, and forwarded when they are recognized as complete.

If within a certain period (timer: End of Dial on Incomplete; the default time is 15 seconds), the system interprets the last number entered as the last digit in the block.

When the timer expires (when the last dialed digit is recognized), dialing automatically begins. Dialing can also be started manually by entering the end-of-dialing code (#).

In the case of PRI, en-bloc dialing to the central office is mandatory. En-bloc dialing is also used in Cornet networks.

Related Topics

- Section 5.1, “Least Cost Routing (LCR) (Not for U.S.)” on page 5-1
- Section 5.2, “Least Cost Routing (for U.S. Only)” on page 5-13

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
CorNet-N	En-bloc dialing is used in CorNet-N networks.
CorNet-NQ	En-bloc dialing is used in CorNet-NQ networks.
QSig	En-bloc dialing is used in QSig networks.
USA, PRI	En-bloc dialing is required with PRI in the USA.

4.3.7 Dial Tone Detection

Implementing features, see also Manager E Dial Tone Detection

Definition

The system always links analog trunk connections to the Dial Tone Detection routine. The system checks the trunk to determine whether the audible tone is present. The dialing information is not transmitted to the trunk until this check has been performed.

The reason for this is that the time until the CO dial tone is received can differ depending on the network operator and network status.

Dial Tone Detection is performed:

- After trunk seizure
- After dialing of administrable digits (for example, discriminating digit in the main communications server, LCR)
- When a second dial tone is monitored

Dial Tone Detection may not be appropriate, for example, in a Centrex environment, where different tones (to indicate CO Call Forwarding activation, etc.) need to be heard by the user. In such cases, the *Trunk Supervision (Dial Tone Detection)* flag must be turned off. Then a trunk seizure delay can be programmed before dialing can begin. If trunk supervision is activated, the system waits until a dial tone is detected, even if *No pause* is selected in this field.

The *Trunk Seizure delay* choices are *No Pause, 1, 3, 6* or *9* seconds.

If *Trunk Supervision* is activated, and dial tone is not detected (timer: *Dial Tone Monitoring time*, default 10 seconds), this line is taken out of operation if there is no dial tone after seizure. Thereafter, the system checks at cyclical intervals whether a dial tone is once again present. When it is, the line in question is put back into operation. Dial tone monitoring time.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Analog trunk board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Audible tone	If audible tone monitoring is not possible or not desired, you can configure a pause before dial.
Audible tone	You can modify the monitoring of a second audible tone and the audible tone monitoring time only using HiPath 3000 Manager E.

4.3.8 End-of-Dialing Recognition

Implementing features, see also Manager E End-of-Dialing Recognition

Definition

As in the case of en-bloc dialing, the end of dialing is signaled either automatically after the timer expires or manually when the user enters the end-of-dialing code (#).

The timer invoked in this case is End-of-dial on incomplete dialing. If dialing is not continued within the specified timeout, an end-of-dial is generated automatically. The default is 15 seconds.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
End-of-dialing time	The longer the time for end of dialing, the longer it takes for the final digit to be transmitted on an analog trunk.

4.3.9 Trunk Dialing Method

Implementing features, see also Manager E Trunk Dialing Method

Definition

The dialing methods currently in use are:

- Dial pulsing (DP)
- Dual-tone multifrequency (DTMF)

Pulses are analyzed in the case of DP, while tones are analyzed in the case of DTMF.

When the system uses analog trunk boards, the signaling method is automatically detected as long as the user has not configured a signaling method or pause before dial. Otherwise, the signalling method can be set on a per trunk basis.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Analog trunk board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Dialing method	If you set the trunk to PABX (communications server), the DTMF method is activated.
Analog trunk seizure	If you configure pause before dial, the DP signaling method is activated.
Power reset (power failure)	The signaling method that is detected is stored until the next power reset (power failure).

4.3.10 Configurable Toll Restriction

Implementing features, see also Manager E Configurable Toll Restriction

Definition

Each user in a communications server can be assigned different toll restrictions. Each time a station attempts to seize a trunk, that station's class of service (COS) is checked (toll restriction). The system distinguishes between 15 different classes of service:

- 0 = no trunk access
- 1 = outward-restricted trunk access
- 2 to 7 = allowed lists
- 8 to 13 = denied lists
- 14 = unrestricted trunk access

The following list describes the classes of service in greater detail.

- **No trunk access**
  Users can make internal calls only. Users can use speed-dialing destinations.
- **Outward-restricted trunk access (incoming authorized)**
  Users can only answer external calls. Users can use speed-dialing destinations.
- **Allowed numbers lists**
  These lists define which numbers stations are allowed to dial. If no numbers are entered in an allowed list, the station functions like a telephone with outward-restricted trunk access.
- **Denied numbers lists**
  These lists define which numbers stations are not allowed to dial. If no numbers are entered in a denied list, the station functions like a telephone with unrestricted trunk access.
- **Unrestricted trunk access**
  Users can answer and set up incoming and outgoing calls without restriction.

The Allowed numbers lists contain the digit sequences which may appear at the start of a call number. The maximum length of the digit sequence is seven digits (0.9, *,#). A maximum of 100 entries can be made in the allowed numbers list no. 1 and the lists numbered 2-6 each contain a maximum of 10 entries.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Hardware requirements	Trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of classes of service	15	15	15	15
Number of characters in list entries	25	25	25	25
Total number of allowed lists	6	6	6	6
Allowed lists, long 100 entries	1	1	1	1
Allowed lists, short 10 entries	5	5	5	5
Total no. of denied lists	6	6	6	6
Denied lists, long 50 entries	1	1	1	1
Denied lists, short 10 entries	5	5	5	5

Dependencies/Restrictions

Subject	Dependency/Restriction
SSD	You can use system speed-dialing destinations regardless of the COS.
Class of service	The toll restriction classes of service regulate which denied or allowed lists are used for the stations for each trunk group. The classes of service apply to data and voice stations.
CS/CorNet/QSig	If the trunk group for networking is set to communications server (CS), the toll restriction check is not performed.
CorNet/QSig	With networking, you should enter the trunk access code of the main communications server as a second trunk access code so that the toll restriction will be checked when a trunk in the main communications server is seized.
Classes of service for two networked systems	When there is an external seizure of a station from the satellite CS (with COS 2-13) over the main CS, the main CS's first denied list always does the seizing. For this reason, keep the first denied line of the main CS free for the assessment of the stations from the satellite CS. The system keeps COS 0, 1, and 14 of the satellite CS.

Subject	Dependency/Restriction
LCR	A distinction is made between classes of service and the LCR class of service; if both are configured, both apply. If however, an overflow route was configured in the LCR route table and an extension receives a call with external FWD, the authorization is not analyzed if the call goes in the overflow route.
Lock code	After code lock is activated, you can reduce the class of service but not select a higher class of service.

4.3.11 Traffic Restriction Groups

Implementing features, see also Manager E Traffic Restriction Groups

Definition

Multiple traffic restriction groups (ITRs), also known as Connection Groups (CON), are provided in the system for all stations. These groups define information on toll restriction and trunk group reference (incoming or outgoing) for stations and trunks.

An ITR matrix defines whether a station

- Is authorized to seize a trunk
- Can seize a trunk only in the incoming or only in the outgoing direction
- Can seize a trunk in the incoming and outgoing directions
- Is authorized to seize certain speed-dialing destinations
- Can access another station internally

The CON matrix permits or suppresses traffic between stations/lines within a subsystem and between subsystems. The CON matrix is configured system-wide.

The system default setting assigns all stations and trunks to ITR group 1. That is, all stations are allowed to seize all trunks in the system. Which of the six groups can connect to which other groups is entered in the matrix.

Tenant Service call restrictions would be defined with the ITR (CON).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
No. of ITR groups	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)

Dependencies/Restrictions

Subject	Dependency/Restriction
ITR group	All stations and trunks are assigned to ITR group 1 by default.
MOH devices	Up to 16 MOH devices can be defined for the 16 possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. Which MOH device is used depends on the ITR group of the station that places the call on hold.
MOH source	You cannot use the logical port “0” as an MOH source.

4.3.12 Private Trunk

Implementing features, see also Manager E Private Trunk

Definition

The private trunk feature provides a station with immediate access to a trunk via a programmable feature key.

Users can program toll restrictions for private trunks by using the traffic restriction group (ITR) feature or by configuring a separate trunk group.

Care should be exercised when configuring a Private Trunk. By definition, a Private Trunk implies that it will only terminate at one station. However, because features are implemented on a device-basis, activation of some features could impact the operation of the Private Trunk, for example, DND, Call forward, intercept.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

4.3.13 Trunk Queuing

Implementing features, see also Manager E Trunk Queuing

Definition

If users receive a busy signal following a trunk seizure request (because no free trunk is available), they can use a procedure to queue on a seized trunk (book a line). As soon as the trunk becomes available, the system recalls the first user in the queue. The user hears the CO dial tone and can set up the external connection.

It is not possible to invoke Trunk Queueing if the attempted call was placed through LCR.

Trunk Queueing can be invoked when all trunks on a Trunk group key show busy.

If the user is busy at the time of the recall, the trunk will camp on to the busy station and if the camp-on to is not answered within the default 20 seconds, the reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user activated DND prior to receiving a recall from a queued trunk, the trunk reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user had invoked Call forward (CFNA or CF), the recalling trunk will ignore the call forward and continue to ring at the requesting station. If not answered within default 20 seconds, the trunk reservation is cancelled.

A recalling trunk cannot be picked up by either Call Pick up - group or Call pick up - Directed.

If a reservation is placed against a trunk which has an appearance at one or more stations, the Trunk key's LED flashes at the recall rate at the station that invoked the queue request. The LED will be lit steadily at all other appearances.

Only one queue/reservation request is possible per telephone. If a second reservation is attempted, it overwrites the first.

A system-wide flag, Trunk reservation, enables/disables this feature

This feature can be invoked in one of the following two ways:

- Manual reservation (for display telephones)
- Automatic reservation (for all other types of telephones)

Trunk Reservation—Automatic

When this flag is activated and if a station is not assigned a free trunk after the usual simplified dialing procedures (random or specific), Busy tone is signaled at the station. After a fixed period (5 seconds), a positive acknowledgment tone is applied and the trunk is reserved, provided that the station has the appropriate CO call privilege.

Trunk Reservation—Manual

- This feature is available only to display telephones.
- This feature does not need to be configured in the database.

Trunk reservation is not possible in hands-free mode. In this case, the system interrupts call setup when it recognizes that the line is seized.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Queue trunk	A station can queue only one trunk.
Trunk queuing	Trunk queuing does not apply to S_0 (not for U.S).
Automatic recall	A recall does not follow call management.
Speakerphone mode	Users can also use trunk queuing in speakerphone mode
Trunk	If a number of stations queue a trunk, the trunk is assigned in the order that the requests were received.
LCR	If LCR is active, trunks cannot be queued.

4.3.14 Temporary Station Number Display Suppression

Definition

This feature prevents a calling or called party from receiving a station number display. The feature is designed as a changeover function; That is, the changeover applies until it is deliberately canceled (changeover repeated).

This feature applies only to incoming from or outgoing calls to an ISDN public network connection. The system-wide flag, Call number suppression on, can be set to suppress the system Caller ID display. The default setting is off; that is, the number is not suppressed.

The feature is designed as a changeover function; that is, the changeover applies until it is deliberately canceled (changeover repeated).

The system-wide flag Call Number Suppression Override does not apply in the US.

All types of telephones can invoke this feature.

The Flags screen is one of three screens in the System Status pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the Flags screen to see if a station has activated Number Suppression or not.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Station number transmission	Temporary station number suppression must be supported by the trunk.
System-wide station number display suppression	If station-wide station number display suppression is activated (CLIR and COLR), it cannot be overridden.

Subject	Dependency/Restriction
CLIR	It is possible to ignore an activated CLIR setting and display the station number of the calling station. This can be useful for emergency calls and in similar situations.
Default access codes	*86 to suppress, #86 to display the number

4.3.15 Denied List for Undialed Trunks

Implementing features, see also Manager E Denied List for Undialed Trunks

Definition

This feature restricts the dial-up access rights for a trunk selected by the attendant console. An attendant console may seize an outside line and transfer it to an internal station. This feature restricts the dial-up access rights for a trunk selected by the attendant console; the user receiving the transferred trunk will not be able to reach the destinations denied by the class of service (COS) level.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Class of service	The class of service of the selected reference station applies.

4.3.16 Assigning Speed-Dialing Numbers to ITR Groups

Implementing features, see also Manager E Assigning Speed-Dialing Numbers to ITR Groups

Definition

You can assign a specific speed-dialing number to a specific user or a specific trunk.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Number of speed-dialing groups	You can configure up to six (16 for V6.0 or later) speed-dialing groups (from KWZx to KWZy), including overlapping ones.

4.3.17 Telephone Lock Intercept

Implementing features, see also Manager E Telephone Lock Intercept

Definition

If a station with an activated telephone lock (lock code) dials a trunk group code, the system immediately forwards the call to the entered intercept destination. If the station makes a call to a destination for which it is unauthorized, the extension indicated always receives a signal.

The "Telephone lock intercept" function can be configured for each station individually using "Set up station: Parameters".

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

4.3.18 Keypad Dialing

Implementing features, see also Manager E Keypad dialing

Definition

In some countries, network provider services are controlled using keypad dialing instead of functional control. To activate these services in the central office, you can use the stimulus interface of the HiPath 3000/HiPath 5000.

The user acknowledges the message traffic using the display. As a result, keypad dialing can be done only on optiset E and optiPoint telephones with display, mobile telephones (HiPath cordless) with optiset E or optiPoint menu navigation and IP telephones with stimulus interfaces.

An authorized station can activate keypad dialing using the service menu or using the *503 code. This is possible only in the idle state. Then the station must select an ISDN trunk that the feature can use.

The actions carried out using keypad dialing are not subject to any system control. HiPath 3000/HiPath 5000 cannot prevent improper use, such as call charges fraud or trunk blocking.
The customer must be informed that Siemens AG accepts no liability whatsoever for damages resulting from the improper use of this feature!

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk connection optiset E or optiPoint telephone with display, mobile telephone (HiPath cordless) with optiset E or optiPoint menu navigation, or IP telephone with stimulus interface			
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Lock code	Keypad dialing cannot be used when the lock code has been activated.
ISDN terminals	ISDN telephones are not supported.
Services	Each network provider determines which services can be used with keypad dialing.
Call detail recording	Depending on the messages sent by the central office (such as when connecting), keypad dialing entries can have consequences for the call data recording. The number of the station using keypad dialing, the line used, and the time period when the feature was executed are protocolled.

4.3.19 E911 Emergency Call Service for the USA (for U.S. only)

Implementing features, see also Manager E Emergency Call Service E911 for the USA

Note on the Relocate (Hoteling) Function
In systems with the U.S. feature E911 emergency service activated:

- V3.0 SMR-7 or later: The Relocate feature guarantees that the LIN remains assigned to the physical port.
- V3.0 SMR-6 and earlier: you are not allowed to use the Relocate feature if the system has more than one Location Identification Number (LIN).

Definition

The E911 expanded emergency call service makes it possible to transmit information about the physical location of a station in addition to the station number. Therefore not only the number of the station placing the call is available in the emergency call center, but the location too.

This requires that each subscriber line with a valid DID number be assigned a Location Identification Number LIN. The LIN is an unambiguous, max. 12-digit number that corresponds to the 10-digit NANP (North American Numbering Plan). Subscriber lines that are physically close to one another are given the same LIN. The emergency call center has a database that contains all the LINs and that uses the transmitted LIN to identify the name and address of the one placing the emergency call.

Danger
Quick help after an emergency call is possible only when valid information concerning the location of the caller who is in trouble is available. For this reason, the correct assignment of the LINs to the available DID number must always be guaranteed. If the customer assumes the system administration, then the customer also assumes the responsibility for the correct assignment of the LINs. In this case, the customer must be informed that Siemens AG accepts no liability whatsoever for damages resulting from the improper use of this feature.

V1.2 and later of HiPath 3000/HiPath 5000 supports this feature for analog (loop start protocol) and digital trunks (Primary Rate Interface PRI).

Analog trunks require an additional converter (such as Telident STS) to translate the transmitted DTMF characters (LS protocol) into the CAMA protocol used for the Emergency Call Service ECS.

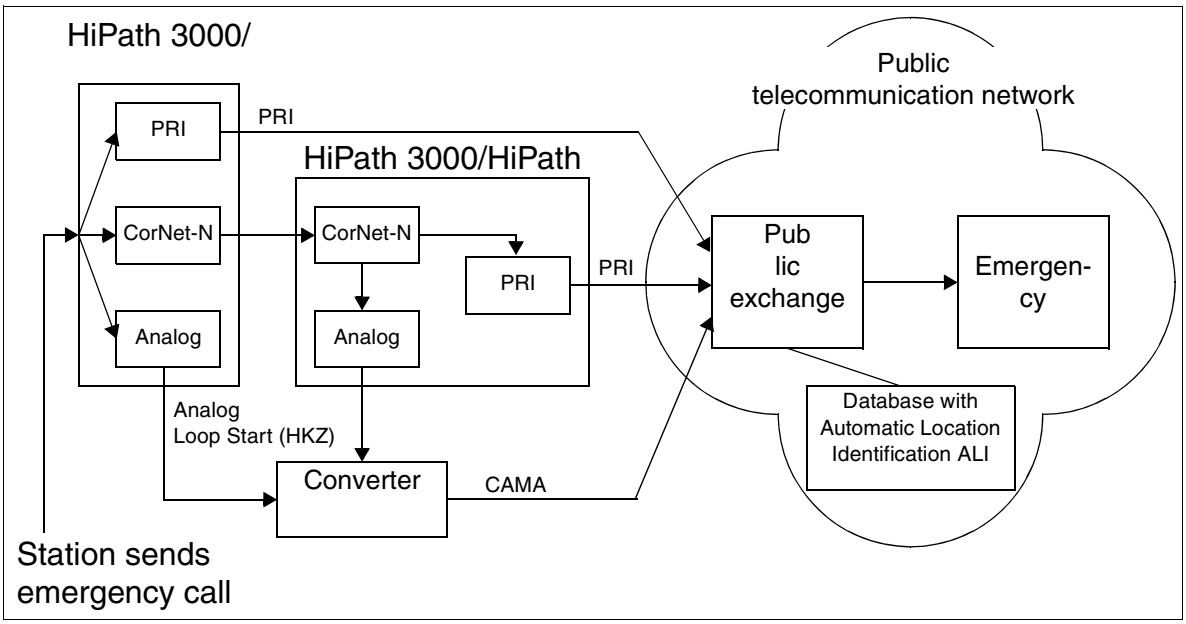


Figure 4-1 Expanded Emergency Call Service E911 (for USA only)

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature for analog trunks available in	**–**	**–**	**x**	**x**
Hardware requirements	–	–	analog (LS) trunk connection	
Software requirements	–	–	V1.2 or later	V1.2 or later
Feature for digital trunks available in	**x**	**x**	**x**	**–**
Hardware requirements	digital (PRI) trunk connection			
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	–

Dependencies/Restrictions

Subject	Dependency/Restriction
E911 emergency call service	for USA only

4.3.20 Trunk Release for Emergency Call (V4.0 SMR-9 or Later)

Definition

Emergency call numbers can be programmed system-wide. If a station dials an emergency number but no trunks are free, one of the CO connections is disconnected and automatically assigned to the station making the emergency call. This is the case as long as the trunks are not already seized for emergency calls.

HiPath 3000 Manager E is responsible for identifying emergency numbers in the dial plan. This means that any number of call numbers can be identified as emergency numbers in the dial plan.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware require-ments	Digital trunk connection			
Software require-ments	V5.0 or later	V4.0 or later SMR-9	V4.0 or later SMR-9	V4.0 or later SMR-9

Dependencies/Restrictions

Subject	Dependency/Restriction
Least cost routing (LCR)	Least Cost Routing must be activated for the feature (set "Activate LCR" flag).
Ringing state	Trunks in ringing state are not released.
Disconnecting trunks	Emergency calls are released via the Release trunk feature (*43).
Analog trunk connection	The feature does not support any analog trunk connections.
Networking	The feature only supports direct digital trunk connections. Node-wide use is not possible.

4.3.21 Automatic Call Completion on No Reply (CCNR) on the Trunk Interface

Definition

You can use this function only if the public exchange supports it.

An internal subscriber who reaches an available external subscriber can activate a call completion request in the trunk. As a result, the system monitors the connection of the called subscriber. As soon as the called subscriber initiates a connection setup and then ends this connection, the system attempts to produce a connection between the two subscribers.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Trunk connection			
Software requirements	V5.0 or later	V3.0 or later SMR-3	V3.0 or later SMR-3	V3.0 or later SMR-3

4.3.22 CLIP no screening

Implementing features, see also Manager E CLIP no screening

Definition

The essential characteristic of this feature is that the HiPath 3000/HiPath 5000 “System number - outgoing” does not have to be the same as the “International/national system number - incoming“.

To make this possible, the “System number” parameter that has been used until now has been split into “System number - incoming” and “System number - outgoing” for V3.0 SMR 3 and later.

Incoming and outgoing calls usually use the same system number. In this case, the entry under “System number - outgoing” is either empty or the same as the one under “System number-incoming”. If this is not the case, you can

- enter a different number under “System number - outgoing”.
- use the routing parameter “No. and type, outgoing” to define whether the entered “System number - outgoing” contains the station number without area code (subscriber), with area code (national), or also with the international country code (international).

You can also activate the flag “Suppress station number” for special customer applications. This prevents the system from sending out the DID number of the station along with the “Station number - outgoing”.

Example: You want to prevent customers from directly reaching a service staff member who is reached centrally with a general service number. To conceal his or her own DID number, enter the general service number as “System number - outgoing” and activate the “Suppress station number” flag. Then called subscribers see only the general service number on their display as the CLIP.

In a Centrex environment, you generally enter the number of the Centrex group as “System number - outgoing” and deactivate the “Suppress station number” flag. The called subscriber then sees the Centrex number plus station DID number as the CLIP.

If the entry under “System number - outgoing” is empty, the system automatically sends the entries under “System number - incoming”.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V3.0 or later SMR-3	V3.0 or later SMR-3	V3.0 or later SMR-3

Dependencies/Restrictions

Subject	Dependency/Restriction
CLIP No Screening	You must configure the “no screening” option for the trunk connection in the public exchange.

5 Description of Features for Least Cost Routing

5.1 Least Cost Routing (LCR) (Not for U.S.)

Implementing features, see also Manager E Least Cost Routing (LCR)

Definition

Least cost routing provides HiPath 3000/HiPath 5000 with automatic control over the route of an outgoing call. This route can be one of various public-network carriers or a private network. Based on routing tables, the system seeks the least expensive connection route for the outgoing call.

The system seizes a trunk only after it has scanned the routing tables. The system sends a dial tone as a function of the dial plan so that the station is informed of the ready-to-dial condition. The signals dialed are buffered until the routing tables have been scanned. Only then does the system make the connection.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of LCR classes of service	15	15	15	15

Dependencies/Restrictions

Subject	Dependency/Restriction
LCR	If all the least expensive connection routes have been seized, LCR automatically switches to defined more expensive routes. The system can signal this to the user both visually and acoustically.
LCR	The dialed station number is displayed until the station number information on the other party is received.
LCR	If LCR is activated, the system checks for the least costly route for every trunk seizure (except when a trunk code is dialed).
LCR	Digits can be transmitted either singly or en-bloc, depending on the access method and the dial plan.

Subject	Dependency/Restriction
LCR	After an account code is entered, it applies to the entire connection setup.
LCR	The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed at the station without considering the trunk group code.
LCR Class of Service	The LCR class of service determines whether a station can use the route recommended in the route table.
Prime Line (simplified dialing)	LCR is not possible when Prime Line is active.

5.1.1 Carrier Types

Since in many cases individual carriers provide specific connections and conditions at different tariffs (sometimes with different signaling methods), least cost routing can be used to automatically select the most economical connection or most economical carrier for each outgoing phone call.

The following carrier types and networks are available for implementing least cost routing (LCR).

5.1.1.1 Mercury Communications Limited Single Stage

Definition

With this type of LCR, a prefix is used to dial the desired network carrier and the station number is subsequently dialed.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
MCL single-stage	Dialing is carried out in the D channel (with ISDN) or as normal dialing (on analog trunks).

5.1.1.2 Mercury Communications Limited Two Stage

Definition

With this type of least cost routing, the system initially selects the carrier using a configurable access code (as with single stage). Afterwards, the system also waits for a connect (synchronization during timeout).

After the connect, the system transmits an authorization code and the destination station number as DTMF signals in the B channel.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
MCL	With synchronization during timeout, you must program a pause of 2 to 12 seconds.

5.1.1.3 Dial-In Control Server (DICS)

Definition

With this type of least cost routing, the system uses the routing table to determine whether the call should be made via the DICS or the public network. If the DICS is used, the system dials the DICS using a configurable access code and an authorization code and transmits the station number dialed by the station in the SUB address (on the D channel). The DICS checks the authorization based on the CLIP information and the transmitted authorization code.

If the DICS is not present during the first connection setup, the system reroutes the connection to the public network. This alternative access must be configured.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Station number suppression	Temporary or permanent station number suppression cannot be activated.
ISDN/SUB addressing	The ISDN feature SUB must be applied for or released in the public network.
Analog trunk	DICS can only be used with ISDN.

5.1.1.4 Corporate Network (CN)

Definition

A corporate network is an alternative network, such as a company-owned network, that is connected directly to the HiPath 3000/HiPath 5000.

The LCR function determines the corresponding trunk group based on the station number dialed and then routes the call either via the trunk group in the public exchange or via the trunk group in the corporate network.
If necessary, the system translates the station number.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

5.1.1.5 Main network supplier

Definition

When a trunk is seized by the main network supplier, simplified dialing is performed by en-bloc dialing or by dialing individual digits into the public network.

If main network supplier was the method selected in the dialing rules table, forwarding in the trunk group table is not performed for entries after the route configured as a main network supplier.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

5.1.2 Routing Tables

Implementing features, see also Manager E Routing Tables

Definition

The routing tables evaluate the digits dialed by the user and determine the station number that the system should dial. In the process, the digits are modified as necessary. This modification can mean that digits are repeated, suppressed, added, or reordered. It is also possible to add a dial pause and change the signaling method. A distinction is made between the following types of routing tables:

- **Dialing rules table**: This table determines how the digits dialed by the user will be converted and dialed by the system. The following special characters can be defined:

  A: Repeat remaining fields (transmit). This letter causes all subsequent digit fields to be transmitted. The point of reference is the last field pointer before "A". The combination E1A is permitted only at the beginning of a string.

  D (n): Dial digit sequence (1 to 25 digits). This letter can be inserted multiple times and at any position in the string.

  E (n): Repeat field from dial plan (from 1 to 10 times). This letter can be inserted multiple times and at any position in the string. "E" can also appear in any order with relation to (n). A specific field can be addressed multiple times, including in sequence. With the exception of "E1", this letter can be surrounded by any parameter.

  P (n): Pause (1 to 60 times the system-wide pause unit). This letter can be inserted multiple times and at any position in the string.

  M (n): Authorization code (1 to 16). This letter must not be in the final position.

  S: Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI). This letter can be inserted in the string only once and may not be in the final position. The "C" parameter cannot be used after "S".

  U: Use subaddress signaling method. This letter can be inserted in the string only once and may not be in the final position. The subsequent characters are again selected in INFO. The "S", "P", and "C" parameters cannot be used after "U".

  C: Access code. This letter can be inserted in the string only once. The subsequent characters are transmitted without a dial pause and are used for single stage, two-stage, DICS (not for U.S.), BRI, and PRI carrier access.

- **Authorization code**: The authorization code is divided into the carrier ID and customer ID. The carrier ID is entered as one entry in the authorization code table. The customer ID is entered as another entry in the authorization code table. The authorization code entry in the outdial rule then consists of the two authorization codes. Only a "protected" authorization code is supported (represented by "*****").

- **Class of service**: Each station is assigned a class of service (COS). A station can then seize a route only if its COS is greater than or equal to the COS in the route table; for example, a station with a COS 7 cannot seize a route with COS 8.
- **Schedule**: Up to eight time zones per day can be configured for each day of the week to control LCR. A search is performed based on the schedule ID entered in the route table to determine whether the current time matches the value entered in the schedule. If it does and if the correct class of service is present, dialing is performed as per the outdial rule entered in the route table.
- **Route table**: Up to 254 route tables with 16 routes each can be created. Each route in a route table is described by a combination of the trunk group, outdial rule, toll restriction, schedule, and an option for warning against a more expensive route.
  The table is scanned from top to bottom. The system checks to determine whether the trunk group is free and the station has the requisite class of service. If so, the system dials per the outdial rule and schedule entered in the route table.
  Depending on the entry in the route table, a warning can be issued to the station informing the user that the call is being routed. This warning can be signaled by a warning tone and a display message. The display shows the outdial rule name.
- **Dial plan**: Each station number dialed for external traffic is checked against the dial plan for up to 30 positions (including field separator and trunk group code). If the number dialed matches an entry in the dial plan, LCR is handled in accordance with the route table in the dial plan.

  To use all available features (such as callback) in conjunction with LCR, the trunk group code must be separated from the dialed station number by a dash (–) in the dial plan (sample dial plan entry: 0–CZ).

The first entry in a dial plan does not have to be a trunk group code; it can also be a station number in a networked system.

The following station number entries are valid:

0...9: Allowed digits

-: Field separator

X: A search is performed based on the schedule ID entered in the route table to determine whether the current time matches the value entered in the schedule.

N: Any digit from 2 to 9

Z: One or more digits to follow up to the end of dialing

C: Simulated dial tone (can be entered up to three times)

To **block outgoing external calls**, enter a dash (–) in the Routing table field of the dial plan.

Example:

Dialed digits (code + station no.)	Route table	Explanation
9C1-900-XXX-XXX	–	The dash (–) blocks all 900 numbers.
9C1-976-123-3456	–	The dash (–) blocks only the number 976-123-3456.

Do not confuse the hyphen (–) in the "Dialed digits" field, which separates the digit blocks in the number, with the dash in the "Route table" field which blocks the numbers.

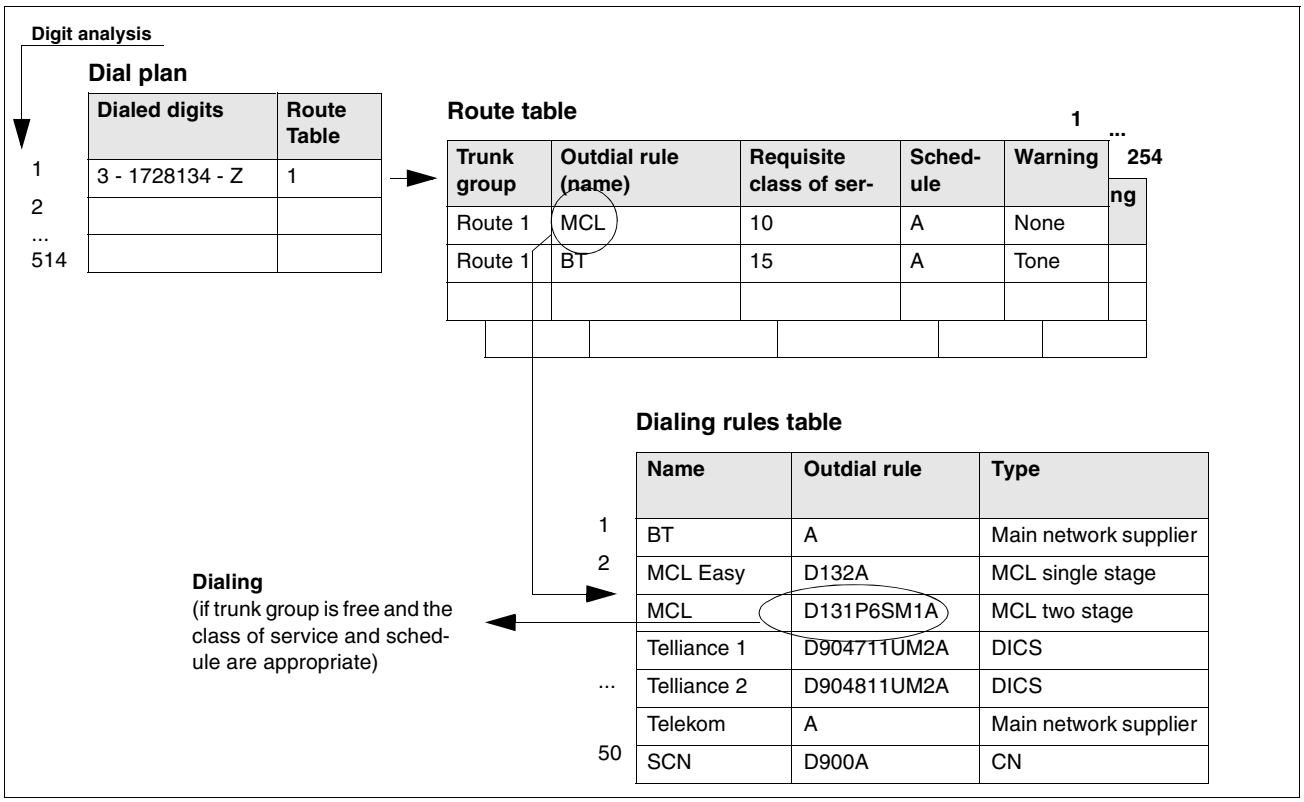


Figure 5-1 Sample LCR Flow Diagram (not for U.S.)

The dialed call number is used as the criterion for the connection route to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both destination dependently and time dependently and in dependence on the station's LCR class of service (COS).

The system contains 254 route tables with 16 routes each. The LCR class-of-service is evaluated hierarchically for LCR.

The outdial rule is described in the HiPath 3000 Manager E by its name, which consists of not more than 16 characters, and in the System Administration by its index.

The station can cancel automatic selection by seizing a line directly (Carrier Select Override - CSO). The LCR class-of-service cannot be transferred between CorNet-N networked systems.

General Operating Principle

The system analyzes the number dialed to determine if the digits entered are valid. If the digits are recognized, a reference route table is scanned for route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

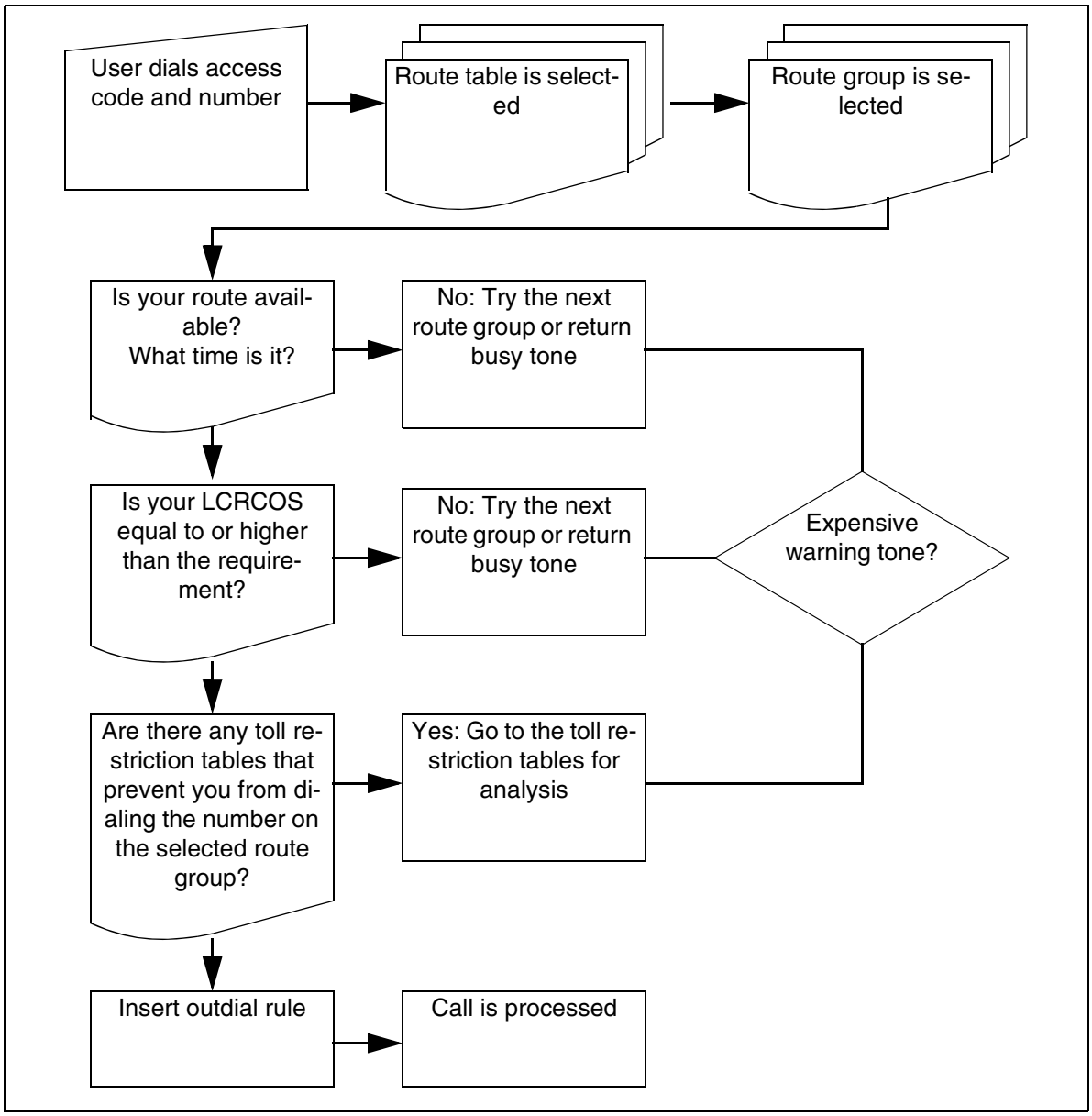

User dials access code and number
Route table is selected
Route group is selected
Is your route available? What time is it?
No: Try the next route group or return busy tone
Is your LCRCOS equal to or higher than the requirement?
No: Try the next route group or return busy tone
Expensive warning tone?
Are there any toll restriction tables that prevent you from dialing the number on the selected route group?
Yes: Go to the toll restriction tables for analysis
Insert outdial rule
Call is processed

Figure 5-2 General LCR Flow

- A system-wide flag activates LCR via Manager T or HiPath 3000 Manager E.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection routes have been seized, LCR automatically switches to defined more expensive routes. The user can be signaled of this fact both visually and acoustically.
- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.

- Digits can be transmitted either individually or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
No. of route tables	254	254	254	254
Number of routes per route table	16	16	16	16
No. of time zones	8	8	8	8
No. of dial rules	254	254	254	254
Number of characters per outdial rule	40	40	40	40
No. of dial plans	514	514	514	514
Number of digits dialed (including trunk group code)	32	32	32	32
No. of digits evaluated	25	25	25	25

Dependencies/Restrictions

Subject	Dependency/Restriction
LCR	With per-digit dialing, the last element in the outdial rule cannot be E(n); it may be E(n)A.
Networking	In networking with open numbering, route optimization cannot be activated.
Least cost routing (LCR)	If "Main network supplier" is entered as a type in the outdial rule, rerouting is not done in the route tables. If routing should be carried out when the trunk is busy or when S_0 lines are disrupted, the type should be set to "Single Stage".

5.2 Least Cost Routing (for U.S. Only)

5.2.1 Introduction

This section explains the definitions and procedures used by the HiPath 3000 least cost routing (LCR) feature to control the route over which outgoing calls are routed to the public network.

The system analyzes each trunk call placed using least cost routing. If the digits are recognized, a reference route table is scanned for Route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information.

The dialed call number is used as the criterion for the connection route to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both *destination-dependently* and *time-dependently* and in dependence on the station's LCR class of service (COS).

General Operating Principle

The system analyzes the number dialed to determine if the digits entered are valid. If the digits are recognized, a reference route table is scanned for route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

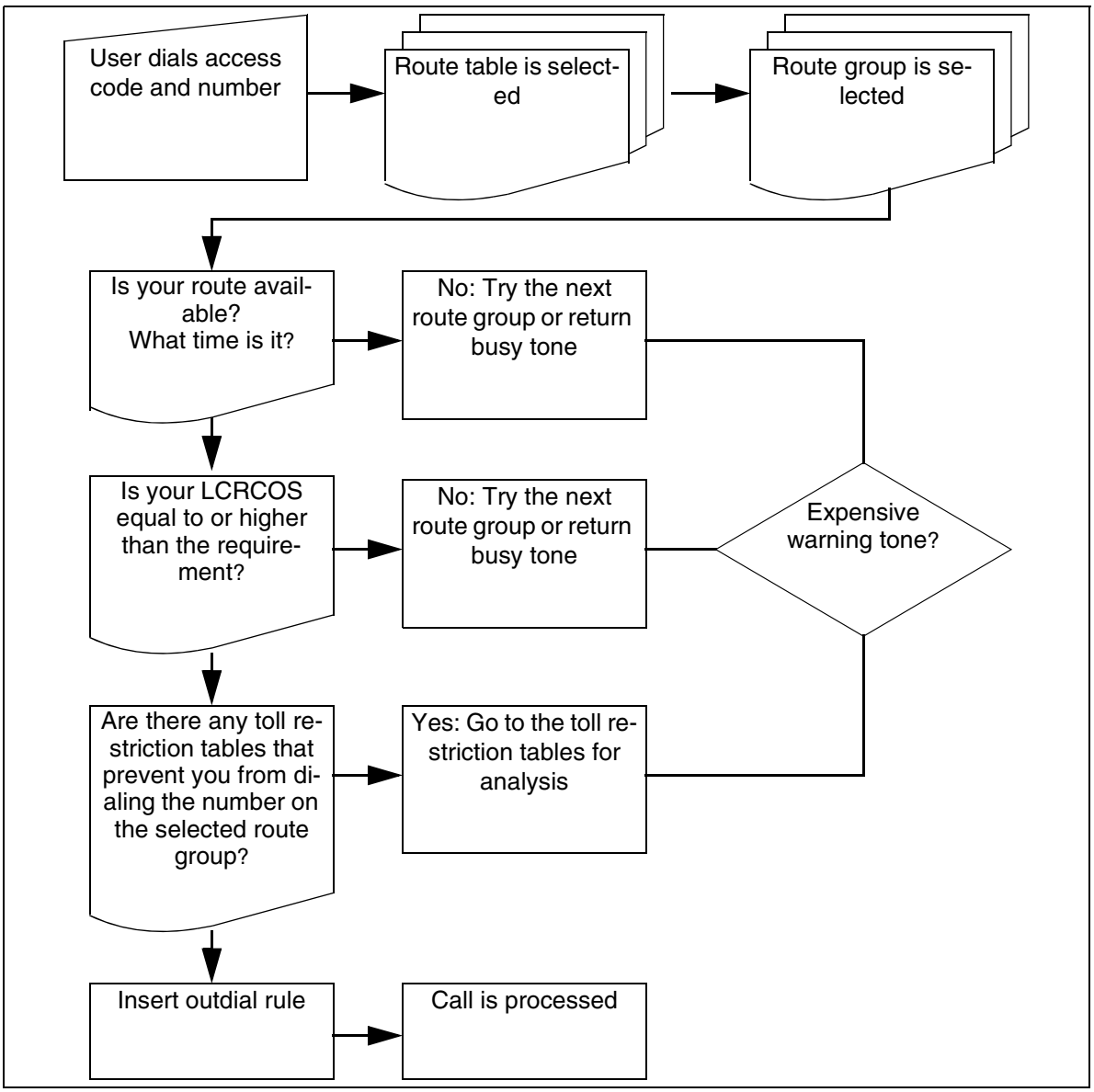

User dials access code and number
Route table is selected
Route group is selected
Is your route available? What time is it?
No: Try the next route group or return busy tone
Is your LCRCOS equal to or higher than the requirement?
No: Try the next route group or return busy tone
Expensive warning tone?
Are there any toll restriction tables that prevent you from dialing the number on the selected route group?
Yes: Go to the toll restriction tables for analysis
Insert outdial rule
Call is processed

Figure 5-3General LCR Flow (for U.S. Only)

- A system-wide flag activates LCR via Manager T or HiPath 3000 Manager E.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection routes have been seized, LCR automatically switches to defined *more expensive* routes. The user can be signaled of this fact both visually and acoustically.

- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.
- Digits can be transmitted either individually or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

5.2.2 Carrier Types

Since in many cases individual carriers provide specific connections and conditions at different tariffs (sometimes with different signaling methods), least cost routing can be used to automatically select the most economical connection or most economical carrier for each outgoing phone call.

The following carrier types and networks are available for implementing least cost routing (LCR).

- AT&T
- MCI
- Sprint
- Westinghouse
- U.S. Government Federal Telephone System FTS-2000

Connections to the local exchange carrier (LEC) are toll-free. Connections to the inter-exchange carrier (IEC) are handled by the carriers listed above. The LEC has a default IEC that it uses for long distance calls unless the user selects another carrier. To select another carrier, the user must first dial the IECs Carrier Access Code (CAC) and Carrier Identification Code (CIC).

There are two different types of CIC numbering schemes: one for a 3-digit CIC and another for a 4-digit CIC. The four-digit code consists of the three-digit code preceded by the number 0. For example, the CIC for MCI is 222 or 0222.

The CAC for a three-digit CIC is 10, and the CAC for a four-digit CIC is 101.

5.2.3 Using Alternate Carriers

Alternate carriers may be connected to each trunk route group. The selection of the carrier is defined in the least cost routing outdial rule section.

5.2.3.1 Carrier Access Methods Supported

Main network supplier

When seizing a trunk using the main network supplier, the system can use en-bloc dialing or send single digits to the public network to set up the outgoing call. Note that this access method is used when routing calls over the public switching network.

MCL Single-Stage

The system calls the selected carrier using a prefix and then dials the destination number. Digits are sent in the D channel when using ISDN service or as normal dialing when using analog service. This selection may be used in CorNet applications for advancing to public network facilities for overflow applications.

MCL Two-Stage

The system calls the selected carrier using a prefix in this method as well. After a short synchronization phase, it sends a programmable authorization code and then the destination number using DTMF digits.

Corporate Network (CorNet)

When a corporate network (CN) method is used, the alternate network is connected directly to the HiPath 3000. This can be seen as a company network. LCR determines the trunk group by analyzing the number the user has dialed and routes the call either over the CO trunk group or over the corporate network. This method allows both an open and closed numbering plan to be implemented by manipulation of digits.

Dial-In Control Server

The system calls the selected carrier using a prefix and calls a dial-in control server (DICS). The authorization code and the destination number are transmitted within the SUB address. Dialing information is sent in the D channel.

Primary Rate Interface

The choice of a carrier or of a calling service is encoded in the following information elements:

- Network specific facility
- Operator system access
- Transit network selection

LCR Dial Plan

The dialed destination number serves as a criterion for the route group to be used. The system can evaluate up to 24 digits in the dialed sequence plus the routing code. The system evaluates and routes the call based on a time of day schedule and the station's least cost routing class of service.

Destination-Dependent Evaluation

The dialed digit sequence may be converted to a new digit sequence after evaluation, or it may be preceded by additional digits such as the carrier information of the destination.

5.2.4 LCR Time of Day Evaluation

The time table allows the system to evaluate the availability of a selected route according to a maximum of eight time zones. For each weekday, the number can be evaluated in hour:minute intervals throughout the day.

5.2.5 LCR Dial Rules

The dialed number can be converted to any new digit sequence (up to 40 digits). The system can evaluate up to 514 digit sequences dialed from the station. Wildcards may be used in the LCR dial-plan table. The system supports 254 dial rules for digit translation requirements as well.

5.2.6 Expensive Route Identification

If the first route selection in the route table is busy, the LCR function can advance to the next expensive route configured in the route group table. The system can notify the user of this with an audible signal, an optical signal, or both. Users can then decide whether they would like to use the assigned route or hang up.

5.2.7 Overflow Options

When the LCR function determines that the preferred trunk or tie-trunk group cannot be used, it can select an alternate trunk group within the selected route-group table.

5.2.8 LCR Class of Service

Up to 15 station-specific trunk classes of service are possible. The class of service setting controls access to the configured route groups in the LCR route-group table.

5.2.9 Carrier-Select Override

Carrier-select override (CSO) can be implemented using selective line seizure. In this case a connection can only be set up via the main network supplier.

5.2.10 Handling of Numbers and Destinations and Trunk Group Access Codes

All numbers except internal station numbers are stored as an LCR digit string. All numbers dialed by a user are displayed without routing information. The dialed numbers remain displayed until answer supervision is received from the central office. If more than one trunk group access code is programmed for a trunk group, the first access code is the default.

If the number of the called party during an outgoing connection is also stored in the optiset E or optiPoint 500 caller list or if a callback is activated, the number dialed by the user is stored instead of the destination number sent by the system. In this case, the trunk group access code is also stored so that the system can recall the party from the caller list using the correct access code.

5.2.11 Correlation With Other Features

This section describes how the least cost routing application interacts with other system features.

5.2.11.1 Station-Related Features

- System speed-dialing call numbers must be prefixed with the LCR access codes for proper operation.
- Station redial will insert the access code used for the original call.
- Repertory dial keys to external destinations must have the LCR access code for proper operation.
- Electronic notebook entries on optiset E memory telephones must include an LCR access code.
- General call keys will be activated when the route is selected by the system.
- Call keys will be activated when the route is selected by the system.
- MUSAP keys may be used for external calling using the LCR access code.
- DTMF tones may be input manually when answer supervision is received.
- Toll restriction class of service is checked as part of the LCR analysis.

5.2.11.2 Trunk-Related Features

- Basic rate ISDN trunks may be accessed by stations assigned CACH values or PDID values.
- Verified forced account codes may be requested before a selected route group is accessed.
- DTMF or rotary pulse dialing may be selected based on the outdial rule.

Additional Information Concerning the Setup of Public Network Trunks

- The class of service configured is valid on a locked terminal (lock code).
- It is possible to send speed-dialing numbers after selecting the network.
- If speed-dialing numbers are used without first selecting the network, the default network is used (carrier-select override).
- If LCR is activated, there is no trunk group overflow. An alternative route can be determined using the route table.
- When LCR is activated, no digit repetition is performed; the routing tables are followed instead.
- Message waiting and automatic callback follow the rules for LCR.
- An account code entered by the user is valid for the whole connection, even if more than one route over different trunk groups was tried during connection setup.

- In the case of connections via other network providers or carriers, the provider or carrier may not transmit the actual connection costs, i.e., it may send the HiPath 3000only the charges to the dial-in node (such as a dial-in control server [Europe only]).

5.2.12 Routing Tables

The routing tables evaluate the digits dialed by the user and determine the station number that the system should dial. In the process, the digits are modified as necessary. This modification can mean that digits are repeated, suppressed, added, or reordered. It is also possible to add a dial pause and change the signaling method. A distinction is made between the routing tables discussed in the following sections.

5.2.13 LCR Dial Plan

In the case of external calls, the system checks each number dialed up to a total of 25 digits, including field separators and trunk-group access codes. The dial-plan entry is associated with a route group for the destination number and the system assigns this route to the station for setting up the connection.

The dial plan may be separated into unique fields for identification and configuration purposes using the dial rules. The table shows the numbers 4922000 and 14084922000 entered in the dial-plan table.

Field 1		Field 2		Field 3		Field 4		Field 5
9	C	492	–	2000				
9	C	1	–	408	–	492	–	2000
62659321	Reset boards and port assignments stored in the system.							

The following station number entries are valid:

- 0 . . . 9 Allowed digits
- – Field separator (maximum of 10 fields per dial-plan entry)
- C Simulated dial tone (can be entered up to three times). This entry is also interpreted as a field separator.
- X Any digit from 0 to . . 9
- N Any digit from 2 to . . 9
- Z One or more digits follow before end of dialing
- C Simulated dial tone (can be entered up to three times)

Notes: The character # within a dial string means end of dialing or signaling method changeover. That is why "*" and "#" are invalid entries. Dial rules may be used to insert the * and # in the dial string to the public network.
Do not confuse the hyphen (–) in the destination field, which functions as a field separator, with the dash in the "Route table" field, which blocks the numbers (see Table 5-1).

If Prime Line is used, no LCR is possible.

For the LCR dial plan to accurately select the route group, the dial-plan entries must be entered as follows.

Entries should be placed in ascending numeric order from 0 to 9. Specific dialed numbers must precede wildcard entries to prevent conflicts in matches with wildcard entries. Table 5-1 is an example of the suggested entry order.

Table 5-1 Sample Entries in a Dial Plan Table

Entry No.	Dialed Digits (code + station no.)	Route table
1	9C0Z	1
2	9C011Z	
3	9C492-5001	1
4	9CNXX-XXXX	1
5	9C1-NXX-XXX-XXXX	1
6	9C1-900-XXX-XXX	-[1]
7	9C1-976-123-3456	-[2]
...		
254		

1 In this example, the dash (-) blocks all 900 numbers from being dialed.

2 In this example, the dash (-) blocks only the specific number (976-123-3456) from being dialed.

The fields formed by the field separators “–” and “C” in the dial plan can be addressed selectively to repeat, suppress, exchange, or insert digits.

5.2.13.1 Rules for Creating LCR Dial Plan Entries

- The first field should contain only a programmed trunk group access code. It must not contain any wildcards.
- The wildcards N and X can occur more than once in any field except the first field.
- The wildcard Z can occur only in the last field. It represents an undetermined number of suffix digits.
- A digit sequence can be divided into a maximum of 10 fields.

5.2.14 Route table

A route table contains up to 16 routes. Each route is described by a combination of the following:

- Trunk group
- Outdial rule
- Toll restriction
- Schedule
- Code for an expensive route

Routes

The system contains 254 route tables, each with 16 routes. LCR evaluates the trunk access in hierarchical order.

Search Order

The system searches the route table from top to bottom. If the located route is busy, or if the station does not have the proper class of service, the system continues to the next route.

Outdial rule

The outdial rule is described in HiPath 3000 Manager E by its name, which can be up to 16 characters long, and by its index in system administration.

Carrier-Select Override

Users can deactivate automatic selection within the route by selecting a specific carrier (carrier-select override, CSO). For CSO to work, the requested carrier must be located in the dial plan and the route table assigned by the dial plan, and the user must have the required trunk access.

5.2.15 Schedule

To control LCR it may be necessary to configure up to eight time zones per day. These time zones are programmable for every day of the week. Each day begins at 12:00 a.m. Entering the end time in each of the columns delineates the time zones.

5.2.16 Dialing Rules Table

The following is a sample dialing rules table. The dialing rules table determines the following:

- The way the digits entered by the user are converted and dialed by the system
- The route on which dialing will take place
- The maximum amount of time the LCR function has to control dialing
- Up to 254 dial rules, each up to 40 characters long, can be defined.

Dial rules are defined by the following parameters:

A: Repeat remaining fields (transmit).

D (n): Dial a digit sequence (1 to 24 digits).

E (n): Repeat field (1 to 10) from dial plan.

M (n): Authorization code (1 to 16). This letter must not be in the final position.

P (n): Pause (1 to 60 times the system-wide pause unit).

S: Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI).

C: Access code

U: Use subaddress signaling method.

N (n): Network SFG (1 to 5) or Band Number (1)

Number	Name	Outdial rule	Type
1	Dial All	A	Main network supplier
2	Dial Fld 2 Then 3	E2E3	Main network supplier
3	Dial All _P_ D444	AP1D444	Main network supplier
4	Dial 4 Dial All	D4DA	Corporate network
...			
254			

The dialing rules provide access to different carriers via digit translation. The dialing rules address the dial plan fields selectively for the following operations:

- Repeating digits
- Suppressing digits
- Exchanging digits
- Inserting digits
- Inserting pauses
- Switching the signaling method
- Detecting a dial tone.

Using the *A* Parameter

The parameter *A* ensures that all subsequent digit fields are transmitted. The reference point is the last field indicator preceding *A*. The parameter *A* can occur more than once in the string and can be placed in any position. The *AA* combination has the same effect as *A*. The *E1A* combination is permitted only at the beginning of a string.

Using the *D* Parameter

The parameter *D (n)* can occur more than once in the string and can be placed in any position. It can be surrounded by any parameter. It should be no more than 25 characters long.

Using the *E* Parameter

The parameter *E (n)* can occur more than once in the string and can be placed in any position. The parameter *E (n)* can be arranged in any order, depending on *n*. A specific field can be addressed multiple times, including in sequence. With the exception of the *E1A* combination, *E (n)* can be surrounded by any other parameters. The *n* can be any number between one and 10.

Using the *M* Parameter

The parameter *M (n)* can occur only once in the string. This letter must not be in the final position. The *n* can be any number between one and 16.

Using the *P* Parameter

The parameter *P (n)* can occur more than once in the string and can be placed in any position. It can be surrounded by any parameter. The pause length is *n* times the length of the system pause. The *n* can be any number between one and 60.

Using the *S* Parameter

The parameter *S* can occur only once in the string and should not be placed in the final position in the string. It cannot precede the *C* parameter.

Using the *C* Parameter

The parameter *C* can occur only once in the string. The digits following C are sent without dial pause. The parameter *C* is used for carrier access with single stage, two stage, DICS and PRI. It cannot be used after *S*.

Using the *U* Parameter

The parameter *U* can occur only once in the string. It should not be placed in the final position in the string. The subsequent characters are again selected in INFO. The following parameters may not be used after *U*:
S
P
C
M

Using the *N* Parameter

The parameter *N* can occur only once in the string and should not be placed in the first position. The subsequent digits are the SFG or the band number, depending on the calling service.

Authorization Code

Up to 16 authorization codes with a maximum of 16 digits can be entered for accessing services from different carriers. The codes may be used for accessing special common carriers or adding additional digits to a dial string as part of the outdial rule.

Example: 53276543

One secure authorization code is provided (displayed as **********).

5.2.17 Operation

The system does not seize a trunk until it has completed the routing tables. To inform the user that the telephone is ready for dialing, you can insert a dial tone into the LCR dial plan using the letter *C*. The dialed digits are buffered until the system completes the routing tables. Only then does the system make the connection.

The route table (1 to 254) is first determined via the dial plan on the basis of the dialed destination number. If the destination number is not found in the dial plan, the user receives a busy signal.

The route table for each route element describes the following:

- The trunk group assigned to the route
- The outdial rule
- The trunk access needed for seizure
- The required time plan
- The code of an expensive route (warning tone)

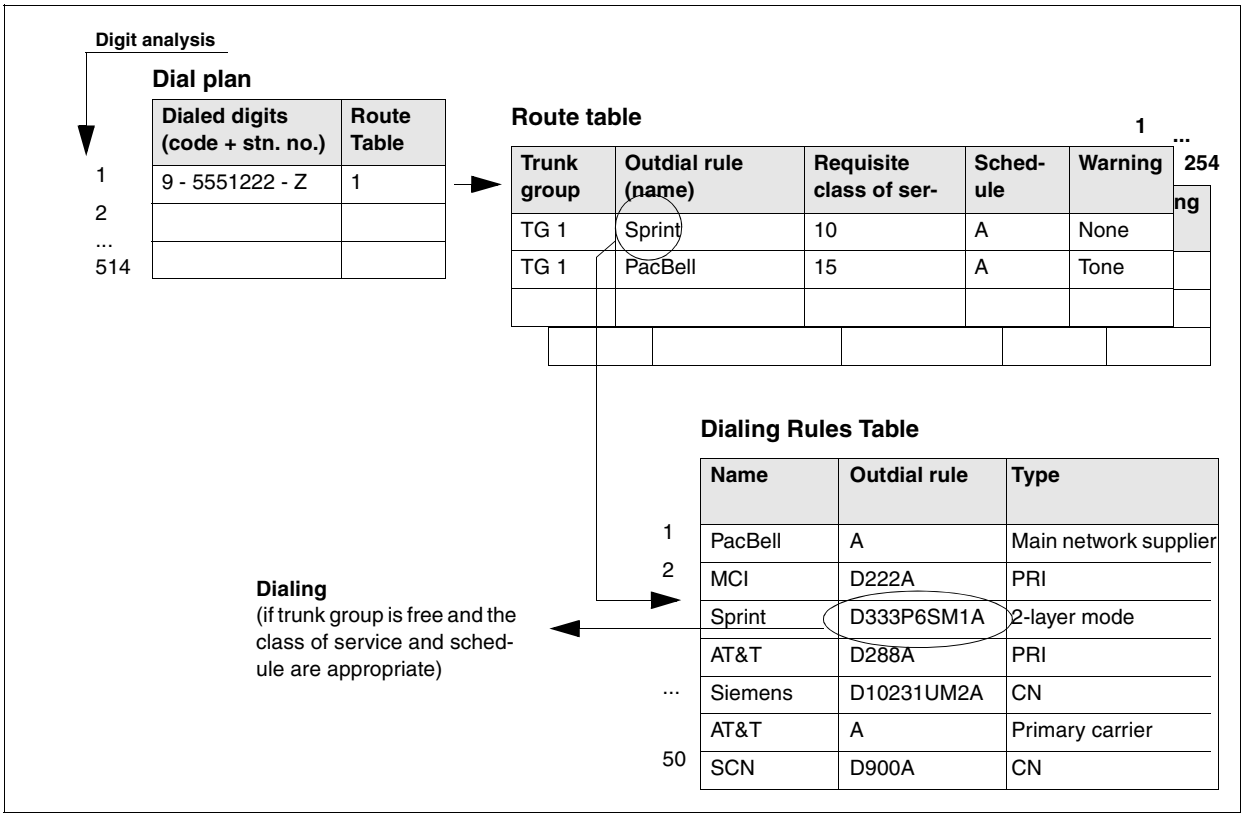
The outdial rule determines the outgoing dialing procedure for the selected trunk group. Selection may be unsuccessful for one of the following reasons:

- Busy route group
- Time-of-day restriction
- LCR class-of-service restriction

In this case, another carrier can be selected via the alternative routes. You can configure an expensive-route warning tone to sound when an expensive carrier is selected.

The destination number that the user dialed is generally displayed until the requested party answers (ALERT or CONNECT). Then the destination number reached is displayed if available. The dialed destination number is stored in the station's redial memory.

The following figure shows a sample LCR flow diagram.



6 Features for Internal Traffic

6.1 Internal Traffic

Definition

Internal traffic refers to connections between two internal stations. If the system is equipped with simplified dialing (Prime Line), users can set up an internal call on optiset E or optiPoint telephones by using the extension key.

If simplified dialing is not configured, users can set up an internal call by dialing the internal station number.

The simplified dialing (Prime Line) feature is a system-wide feature that allows users to dial directly to external destinations without the use of Trunk or Trunk group keys. The external access code is automatically dialed by the system. Only one outgoing Trunk Group is possible with this arrangement. To dial internal stations, the user must first press the Internal key and dial the station number.

Without simplified dialing (Prime Line), outside connections require a Trunk, Trunk group key, or an access code.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Extension key	LED signaling is not assigned to the extension key.
Simplified dialing (Prime Line)	Prime Line is a system-wide feature that allows users to dial directly to external destinations without the use of call or trunk keys. The requisite trunk or trunk group code is automatically dialed by the system. If Prime Line is deactivated, you must press a trunk or call key or dial a trunk or trunk group code to set up an external connection.

6.2 Direct Station Selection (DSS)/Repertory Dial Key

Implementing features, see also Manager E Direct Station Selection (DSS)

Definition

The programmable function keys on optiset E and optiPoint telephones (or key modules) can be configured as direct station select (DSS) keys. In this case, users program the keys with the number of an internal station or station group. Pressing the DSS key calls the destination station (direct station selection). The associated LED indicates the call status of the station (ringing, busy, free).

In V5.0 or later, you can configure a DSS key with or without LED support. To use double key assignment in the programmable function keys of optiPoint devices and key modules, only station numbers without LED support can be saved in the first level. In the second level, only station numbers without LED support can be programmed. These can be internal station numbers, external station numbers and station numbers from a HiPath network.

LED	Meaning	Effect of pressing a key
Off	Station is free.	Immediate call to destination station is generated.
On	Station is busy / Station has failed	Depending on the system configuration, possible procedures for a station identified as busy are: • call waiting after timeout (default), • immediate call waiting or • call waiting rejection
Flashing fast (250 ms on/ 250 ms off)	Station is called	Call pickup is initiated to the call number of the station programmed here.
Flashing slowly (750 ms on/ 750 ms off)	Station is in hold state.	The call to the held station is resumed and die connection becomes active once again. A distinction is made between: • Exclusive call hold = the slowly flashing LED is only displayed to the station holding the call. • General call hold = the slowly flashing LED is presented to all stations at which the held station is programmed on this key.
Flickering (50 ms on/ 100 ms off)	Your own station is being called by the station programmed on this key.	Immediate connection with the calling station. Note: Multiple parallel waiting calls are signalized by the flickering of several DSS keys, provided that the respective stations are programmed on those keys. The subscriber being called can select and answer a call by pressing one of the flickering keys, regardless of the call shown on the display.

LED	Meaning	Effect of pressing a key
Irregular flashing[1] (450 ms on/ 50 ms off)	Station is in "Do not disturb (DND)" status.	An authorized station can override DND, in which case a busy signal sounds for five seconds. The destination station then receives a call (not a speaker call).

1 May occur in V4.0 SMR-8 and later

The DSS key is also used as a means to quickly transfer an incoming call to another station. The user, during a conversation with an external party, can press a DSS key; this places the current call on Consultation Hold. The user can then transfer the call screened or unscreened to the DSS destination. If the destination does not answer, a recall is effected and the user can retrieve the call by pressing the DSS key once again.

A DSS appearance can appear on multiple stations. A station cannot have a DSS key with its station on the telephone.

The HiPath 3000 has programmable Repertory Dial (Repdial) keys. Repdial keys store destination numbers. Feature access codes cannot be stored under a Repdial key. External destinations up to 25 digits, including the trunk, trunk group, and LCR access code, can be stored under a Repdial key as well as internal Call Group numbers. When operating the repdial key, the LED is not functional.

Programming of RepDial destinations and DSS keys must be done via HiPath 3000 Manager E in the case of non-display telephones. DSS keys can also be programmed by the user on a display telephone.

Model-Specific Data for optiPoint key module

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiPoint 500 basic, optiPoint 500 standard, optiPoint 500 advance, optiset E advance plus/comfort, optiset E advance conference/conference, optiset E memory, optiPoint 600 office			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. number of key modules per telephone	2	2	2	2
Max. number of key modules per system	100	100	100	30
Max. number of programmable keys per key module	16	16	16	16

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Number of key modules per cabinet	50	50	–	–

Model-Specific Data for optiPoint Busy Lamp Field BLF (optiPoint BLF)

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	–
Hardware requirements	optiPoint 500 basic, optiPoint 500 standard, optiPoint 500 advance			–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	–
Max. number of optiPoint BLFs per telephone	2	2	1	–
Max. number of optiPoint BLFs per system	12	12	6	–
Max. number of programmable keys per optiPoint BLF	90	90	90	–
Number of optiPoint 500 telephones with optiPoint BLF	6[1]	6[2]	6	–

1 Max. 2 optiPoint BLFs pro optiPoint 500 station
2

Dependencies/Restrictions

Subject	Dependency/Restriction
DSS	This feature functions on optiset E and optiPoint telephones only.
Call pickup	A call can be picked up by pressing the DSS key for that station.

6.3 Names

Implementing features, see also Manager E Names

Definition

Users can assign names to each station, to each station group, and to each trunk group. These names are displayed for internal calls (including calls via CorNet). If an incoming call does not contain station number information (analog trunk), the trunk group name is displayed. If the incoming call contains station number information (ISDN), this information is displayed.

An optiset E memory telephone is required as Manager T to enter characters of the alphabet. Characters which can be used: all letters found on the memory telephone keyboard, digits 0-9, *, #.

If no name has been assigned to an internal station, the number is displayed instead.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum number of letters in station and group names	16			
Maximum number of letters in trunk group names	10			

6.4 Automatic Callback When Free or Busy

Definition

Users can activate an automatic callback to a free or busy internal station. When the callback destination finishes its call (when busy) or initiates an outgoing call, the system calls back. First, the system calls the user who initiated the call. After that user answers, the system calls back the station the initiating user wishes to speak with.

A telephone can initiate up to two Callback requests and be the destination for up to two requests. Further requests beyond these limits are rejected.

Callback requests are deleted when:

- the call is completed
- the initiator cancels the request
- the system deletes daily at 11:57 p.m. all callbacks that were initiated towards other CorNet nodes

Callback requests can be set on internal stations and groups, but not to groups located in other CorNet nodes.

Callback Requests Set on a Group

- A request set on a hunt group is set on the first member of the group.
- A request set on a Group Call is set on the first member of the group.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Callbacks per station	5	5	65	5

Dependencies/Restrictions

Subject	Dependency/Restriction
Callback	The callback is not deleted until the call is completed or the initiating station deletes the callback.
Callback	Every night at 11:57 p.m., all callbacks that are not within the system (CorNet) are deleted.
Callback	A callback can be set to an internal group (not DSS1, CorNet-N, or QSig). The callback is stored with the first station in the group.

6.5 Entrance Telephone/Door Opener

Implementing features, see also Manager E Entrance Telephone/Door Opener

Definition

With this feature, the system signals a defined user (entrance telephone ring destination) when the doorbell function activates. Lifting the handset connects the user at the entrance telephone with the user at the ring destination. The ring destination user can then activate the door opener from the ring destination if desired.

In addition, users can activate the door opener from the entrance telephone by entering a 5-digit PIN using a hand-held DTMF transmitter. Users can also set up a voice connection to the entrance telephone.

The following settings can be implemented:

- Opener: In this configuration, the door opener is set up via an analog interface; the entrance telephone must be connected via an adapter.
- DTMF: This setting specifies whether the door opener is activated by a DTMF transmitter.
- Call forwarding: This specifies determines whether the call from the entrance telephone is forwarded to an external call forwarding destination.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Entrance telephone or ET/A or ET w/amplifier			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Max. no. of entrance telephones	4	4	4	4

Dependencies/Restrictions

Subject	Dependency/Restriction
Entrance telephone ring destination	If a call is already indicating camp-on at the entrance telephone ring destination, an intercept is performed. If the intercept station is also busy, the system searches all optiset E and optiPoint telephones.
Night service	Night service is not taken into account in the signaling.
HiPath 3250	Door busy and messenger call are possible using the optiset E control adapter.

6.6 Speaker call

Definition

A speaker call allows an internal connection to be set up without the called user lifting the handset; the loudspeaker on the called user's telephone is activated. Direct answering without lifting the handset can be done via phones with a microphone. Through lifting the handset, the call becomes a normal two-party call.

Speaker calls permit announcements to groups (paging zones) of up to 20 stations. This feature is also called internal paging. In this case, group members have no direct answering option. If a member of a paging group goes off hook during a page, the call then becomes a normal two-party call. Group members can include optiset E and optiPoint telephones.

Speaker calls and internal paging options are available on internal optiset E and optiPoint telephones with loudspeakers, and with optiPoint 400/410 and
optiClient 130. They are activated by means of a key or a code. For each extension, it is possible to configure whether the user can receive a speaker call.

Speaker call

To place a Speaker Call to a station, the user dials the default access code *80 or can press the Program/Service key, scroll to and select the prompt *80=Speaker Call?, then enter the destination number, hears confirmation tone and announces the call. Non-display and analog telephones use the access code followed by the station number.

At the receiving end, the user hears a short burst of ring, followed by the introduction from the calling party. The Mic. Mute key LED is lit to advise the called party that the caller cannot hear. The called party can go off-hook to answer the call or, if the telephone has a microphone, press the Mute button to reactivate the microphone.

The caller can invoke this feature by using a key programmed on the telephone. The LED is lit for the duration of the Speaker call.

Direct answering

The operation is similar to the above, except that the called party can allow Speaker calls to be immediately connected without having to enable the microphone.

To enable the Direct Answering function, the user dials the default access code *96 or presses the Program/Service key and scrolls to and selects the prompt *96=HF answerback On?

To disable the feature (the feature Speaker Call remains active), the user dials the default access code #96.

Internal Paging

The operation is similar to the feature Speaker Call except that the caller dials *80 followed by a Call Group number. After the hearing the tone, the user can make an announcement.

Stations in a group which are busy or in DND, do not receive the internal paging. Calls placed to a group while an internal page is in progress, hear only busy, and only camp on to after the paging has been terminated. Calls placed to a telephone which has been called via Speaker Call, only hear busy and are not allowed to camp on to until the Mic. Mute function has been disabled.

Internal Paging and Speaker calls are forwarded if the destination or member of the paging group is forwarded.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with speaker			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Direct answering	When you dial *96, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing #96.
Do Not Disturb	You cannot use this feature with stations that have activated DND.
Toggle, consultation hold, transfer	You cannot use toggle, consultation hold, or transfer with this feature.

6.7 Transfer from Announcement

This feature lets you make announcements to groups (paging zones). This feature is also called internal paging. Members of the group can answer the call handsfree.

The procedure is as follows:

- A user answers an external call.
- The user places a consultation call and begins the group announcement.
- The system sets up a two-party call when another party lifts the handset or turns on the speaker, and the party who answered the call hangs up. The remaining group members are removed from the call.

Speaker calls and internal paging are available on internal optiset E or optiPoint telephones with speakers. They are activated by means of a key or a code. For each extension, it is possible to configure whether the user can receive a speaker call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with speaker			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Direct answering	When you dial *96, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing #96.
Do Not Disturb	You cannot use this feature with stations that have activated DND. However, an authorized caller can override do not disturb, in which case a busy signal sounds for five seconds. The user then receives a call (not a speaker call).
Toggle/Connect, consultation hold, transfer	You cannot use toggle, consultation hold, or transfer with this feature.

6.8 Radio Paging Equipment (PSE)

Implementing features, see also Manager E Radio Paging Equipment (PSE)

Definition

Radio paging equipment can be used to transmit type-dependent voice announcements or alphanumeric data (test messages) to users with portable radio receivers. Users being sought can use a procedure to answer this call from any telephone. Radio paging equipment (PSE) can be connected via analog interfaces, analog trunk circuits, or a special module (TMOM for enhanced radio paging equipment in HiPath 3750 and HiPath 3700 only). There are two types of PSE:

- Simple radio paging equipment
- Enhanced radio paging equipment (HiPath 3750 and HiPath 3700 only with TMOM)

6.8.1 Simple Radio Paging Equipment/Simple PSE (not for U.S.)

Definition

Simple PSE allows users to transmit voice announcements and numeric data to the PSE user. One of the two types of message informs PSE stations of waiting calls. Users being sought can use a procedure to answer the call from any telephone.

Radio paging equipment can be the destination for call forwarding or group ringing; it can also be a member of a group.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Analog ports	Analog ports	Analog ports	Analog ports
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Simple radio paging equipment	Does not support expanded call processing characteristics such as those available with enhanced radio paging equipment.

6.8.2 Radio Paging Equipment via ESPA/Enhanced Radio Paging Equipment (Not for U.S.)

Implementing features, see also Manager E Radio Paging Equipment via ESPA

Definition

Enhanced radio paging equipment also includes certain communications server functions. It offers the following options:

- Transmission of alphanumeric data
- Automatic connection setup to the paging subscriber after answering
- Automatic transmission of paging subscriber‘s number
- Storage of up to 15 paging and answer requests
- Radio paging for internal and external calls
- Waiting for callback answer with handset on or off hook
- Selectable displays and ring and paging procedures (selected when entering the paging request)

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**–**	**x**	**–**	**–**
Hardware requirements	–	TMOM	–	–
Software requirements	–	V1.0 or later	–	–

Dependencies/Restrictions

Subject	Dependency/Restriction
Voice call	Voice calls are not possible.

6.9 Message Texts / Mailboxes / Message Waiting

Implementing features, see also Manager E Message Texts/ Mailboxes / Message Waiting

Definition

- Send message to one recipient

  A subscriber can choose a text from a selection of system-internal message texts and send it to any other optiset E or optiPoint station with a display, either internal or within the HiPath 3000/HiPath 5000 network, by pressing the key or using the "Send Message" menu. The message can be sent in idle, ringing, talk or busy state. In ringing state it is not necessary to specify the recipient's station number.

  The initiating party can also be a central voice mail server in the HiPath 3000/5000 network. A special text has been defined for this purpose.

- Send message to multiple recipients (broadcast messages, V4.0 SMR-6 and later)

  In this case a system-internal message text can be sent to all members of a group or hunt group. This is initiated in the same way as for sending a message to a single recipient, by pressing a key or using the "Send Message" menu. The station number of a group or hunt group is specified rather than that of an individual subscriber. The group members can be any optiset E or optiPoint stations with a display, either internal or within the HiPath 3000/ HiPath 5000network.

- Receiving a message

  The system indicates the presence of a message depending on the type of telephone. The following applies to the default setting:

  – On optiset E or optiPoint telephones with display, a waiting message is signaled via the display and a "Mailbox" key, if programmed. In addition, there is acoustic signaling using a special dial tone.

  – On optiset E or optiPoint telephones without display, a message is signaled by the "Mailbox" key. In addition, there is acoustic signaling using a special dial tone.

  – On special analog telephones with a mailbox LED, a waiting message is signaled via this LED (not by a key). These extensions must be configured accordingly. An audible signal also sounds, like on analog telephones.
  To signal messages with the mailbox LED, set the PSUI
  ring voltage (HiPath 3750 and HiPath 3700) to 75 V.
  In V4.0 SMR-7 and later, message signaling with the mailbox LED cannot only be performed with the 25 Hz ring frequency used up to now, but also with the 20 Hz ring frequency specific to the USA. The correct setting is made automatically through the country initialization. Please note that special analog telephones are required for signaling (for example, Teledex (25 HZ) and Telematrix (20 HZ) MWI telephones).

– On analog telephones, a waiting message is signaled by a special dial tone (HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3500 and HiPath 3300) or by the announcement "Message waiting"
(HiPath 3750 and HiPath 3700).

– On mobile telephones, a waiting message is signaled by an advisory ring and the mailbox symbol appearing on the screen.

You can use HiPath 3000 Manager E to adjust the optic and acoustic signaling in the following way:
If the flag “Status display for info message” is not set, the status display “Display infos” is not visible until you scroll in the system menu.
Use the Plus Products flag “Acoustic message signaling” to set whether the signaling on optiset E or optiPoint telephones and other telephones should use the special dial tone or an announcement (only for HiPath 3750 and HiPath 3700) or if no signaling should be done.

- Callback

  On telephones with display, a caller can retrieve information such as the sender’s name and number, text message, date, and time using a dialog menu. The user can then call back the sender of the message without entering a station number. To activate callback on analog telephones, users must use a procedure code; on optiset E or optiPoint telephones without a display, users can press a "Mailbox" key.

- Deleting a message

  The sender and receiver can use a dialog menu or a procedure code to delete the message. Otherwise, the message is deleted only if it results in a call to the station.

- Central voice mail server

  A station in a satellite communications server can program use call forwarding or call forwarding—no answer to send its calls to the central voice mail server. Calls received are then indicated at the station via message waiting. External station numbers cannot be programmed in the call management lists. For this reason, a pseudo port should be configured as a PhoneMail® port for call forwarding to the external voice mail server.

  The default text messages are:
  0 = Please callback
  1 = Someone is waiting
  2 = Appointment
  3 = Urgent call
  4 = Do not Disturb
  5 = Fax waiting
  6 = Dictation please
  7 = Please come see me
  8 = Please make copies
  9 = Ready to depart

This feature can be activated/deactivated via a DISA connection, by its own station user.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum number of simultaneous texts	100	100	100	30
Maximum number of characters in text	24	24	24	24
No. of message texts	10	10	10	10
Max. no. of messages on optiset E and optiPoint clients with a display	5	5	5	5
Max. no. of messages on mobile telephones	5	5	5	5
Max. no. of messages on optiset E and optiPoint clients without a display and/or analog telephones.	1+1 voicemail message			

Dependencies/Restrictions

Subject	Dependency/Restriction
Message texts	The texts are automatically deleted when a call is set up between the two stations.
Message texts	Telephones with alphanumeric keyboards can also be used to enter individualized texts that are not stored.
Voicemail	A separate text is available for voice mail. The maximum number of texts is not affected by the system.
Special dial tone/ announcement	With HiPath 3750 and HiPath 3700, an announcement is issued instead of a special dial tone.
France	The country-specific default for France is to use the special dial tone as the acoustic signaling for all telephones.

6.10 Advisory Messages

Implementing features, see also Manager E Advisory Messages

Definition

optiset E and optiPoint telephones with display can activate an advisory message that has been configured in the system. When a user calls a station that has activated this type of message, the advisory message appears on the caller's display.

Messages can contain variable parameters. The user enters the parameters (such as the time) when activating the feature. Users can use the numeric keypad on the telephone to enter additional characters.

With an optiset E memory telephone, users can enter and send, but not store, an additional, individualized message.

The message is also displayed at the initiator's telephone so that co-workers are also advised. 10 default system-wide advisory messages are provided. These can be changed via administration, using Manager T, HiPath 3000/5000 Manager C, and HiPath 3000 Manager E.

This feature can be activated/deactivated via a DISA connection, by its own station user or for another user with the aid of the feature Associated Services.

The Flags screen is one of three screens in the System Status pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the Flags screen to see if a station has activated an Advisory Message or not.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of advisory messages in system	10	10	10	10
Max. no of characters in advisory message	24	24	24	24

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding	With call forwarding, the telephone displays the advisory message of the called station.

6.11 Internal Phonebook

Implementing features, see also Manager E Internal Phonebook

Definition

On all optiset E and optiPoint telephones with display, users can view a directory of all internal stations with their names and numbers. In addition, users can view entries from the system speed-dialing facility (name, destination station number), to search for and call the desired station.

After selecting the "Internal Phonebook" option from the menu, you can directly enter the name of the party you want to reach with by selecting "GSM/Cellphone procedure". To do this, press the key containing the letter you wish to access. Press the key once to access the first letter, twice to access the second letter, and three times to access the third letter (the one farthest to the right).
All the letters of the name can be entered consecutively in the display. You can also scroll with the dialog keys.

You can also program a key to provide access to the feature, or you can select either Internal stations? or System speed dial. Then you scroll through each name by selecting Next? or scroll to and select the first letter of the wanted name. Selecting a name automatically dials the destination.

The LCD touch-screen display gives optiPoint 600 office users the following additional options:

- Softkey Dial: dials the number beside the cursor.
- Softkey Details: retrieves entries for the highlighted name.
- Softkey End:closes the internal phonebook.
- Scrollbar: for scrolling down the list if more than six names are displayed.

HiPath 3000 Manager E allows you to define whether a station number will appear in the phonebook for each station individually.

optiset E memory users can also use the following keys:

- Dial and Enter (Return) key: dials the number beside the cursor.
- Card key: retrieves entries for the highlighted name.
- End key:closes the internal phonebook.
- Up and Down keys: moves the cursor up or down.
- Keyboard (alphanumeric keyboard): for entering alphanumeric characters.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware require-ments	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Electronic notebook (ENB)	If you activate the telephone's local ENB, you cannot use the internal phonebook feature.
SSD	If system speed dialing is selected, names are displayed only if the internal phonebook is activated.

6.12 LDAP Telephone Directory (V4.0 SMR-7 and later)

Implementing features, see also Manager E LDAP Telephone Directory

Definition

Depending on the system configuration, all optiset E and optiPoint telephones with a display can access directory information (station number and name) that is provided by an LDAP (Lightweight Directory Access Protocol) server. The data stored on the LDAP server can be retrieved and displayed by means of alphanumeric searches. A call number can be selected from the search results and used for the outgoing call.

An LDAP server is a PC-based application which enables access to a database via the LDAP protocol. To access the server using HiPath 3000, you will need a (node-internal) HiPath HG1500 board that communicates with the LDAP server via the LAN interface and an IP network.

The procedure for accessing LDAP directory data is initiated using the familiar menu item "Internal Phonebook" or a programmed key. Depending on the system configuration, you must select either the internal phonebook or the LDAP directory via the menu.

After selecting the "Internal Phonebook" option from the menu, you can directly enter the name of the party you want to reach by selecting the "GSM/Cellphone procedure". To do this, press the key containing the letter you wish to access. Press the key once to access the first letter, twice to access the second letter, and three times to access the third letter (the one farthest to the right). All the letters of the name can be entered consecutively in the display. Click "Search" to search the LDAP directory for the specified name.

The options in the dialog menu allow you to select the required name from the list of displayed results and dial the corresponding destination number directly. You can also select a name using the " +/–" keys.

The LCD touch-screen display gives optiPoint 600 office users the following additional options:

- Softkey Dial: dials the number beside the cursor.
- Softkey Details: retrieves entries for the highlighted name.
- Softkey End: closes the LDAP telephone directory.
- Scrollbar: for scrolling down the list if more than six names are displayed.

optiset E memory users can also use the following keys:

- Dial and Enter (Return) key: dials the number beside the cursor.
- Card key: retrieves entries for the highlighted name.
- End key: closes the LDAP telephone directory.
- Up and Down keys: moves the cursor up or down.
- Keyboard (alphanumeric keyboard): for entering alphanumeric characters.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	HiPath HG1500 board (V3.0) optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V4.0 or later SMR-7	V4.0 or later SMR-7	V4.0 or later SMR-7

Dependencies/Restrictions

Subject	Dependency/Restriction
Electronic notebook (ENB)	If you activate the telephone's local ENB, you cannot use the internal phonebook feature.
Display	The name information provided by the LDAP server is not displayed in ringing or call status. The call numbers for incoming calls are also not replaced by the name information provided by the LDAP server (as when call numbers are replaced by SSD names).
DID number	a HiPath 3000 subscriber can only be reached from the LDAP directory if a DID number has been configured for that subscriber which corresponds to the entry in the LDAP database. Call numbers provided by the LDAP server can only be routed within the network if the internal call number and the DID number are identical.

6.13 Room Monitor

Implementing features, see also Manager E Room Monitor

Definition

The room monitor feature can be used to monitor a room. All telephone types can be used for this purpose. Only internal stations can use room monitoring.

When a user monitors a room, the room monitor telephone receives no call signaling, and the call is immediately through-connected.

A system-wide flag must be set via HiPath 3000 Manager E only.

To monitor a room, monitored telephones without a microphone must have the handset off-hook.

If an optiset E or optiPoint telephone calls a station activated as a room monitor, in the standard configuration the microphone on the calling optiset E or optiPoint telephone is deactivated.

If a call is received by a monitoring station, camp on tone is heard at the monitoring station, but not at the monitored station. The user must disconnect from the monitored station call connection to answer the incoming call. The user can once again call the monitored station at a later time. The feature is still active at the monitored station until it goes on-hook.

The Flags screen is one of three screens in the System Status pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the Flags screen to see if a station has activated Room Monitor or not.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Room monitor	To monitor a room, telephones must have the handset off-hook (exception: optiset E and optiPoint 500 telephones with speakerphone function).
Hunt group	If the room monitor station is in a hunt group, the station is not taken into account for incoming calls to the hunt group.
Analog trunks	If you connect an external station by consultation hold to a station that has activated room monitoring, the external trunk must have a backward release criterion.
Room monitor	If an optiset E or optiPoint 500 telephone calls a station activated as a room monitor, the speakerphone function on the calling telephone is deactivated in the standard configuration.

6.14 Editing the Telephone Number

Implementing features, see also Manager E Editing the Telephone Number

Definition

This feature allows the user to edit the station number digits prior to digit transmission, as is common with mobile telephones, for instance.

The user can edit after entering the first digit. After entering a sequence of digits, the user can edit it from right to left by pressing a key; each time the key is pressed, one digit is deleted. The user first enters the complete correct sequence of digits and then presses the confirm key or lifts the handset to start the digit transmission.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call waiting	Call waiting during editing is possible because the telephone is in the digit input state and is busy for incoming traffic.
Consultation hold	After a consultation hold, the telephone is in the digit input state. This makes it possible to edit station number digits.
Saved call numbers	A call number can only be corrected as it is being entered. It is not possible to edit a saved call number, for example, for number redial.

7 Tenant Service

Implementing features, see also Manager E Tenant Service

The tenant service feature is implemented using existing features. This means that it is not necessary for users to explicitly configure subsystems.

Users can control permitted and barred connections between individual stations and trunks via traffic restriction groups.

The functionality of all features remains unchanged.

Features in tenant service include:

- Intercept
- PABX number
- Missed calls list
- Override
- DISA
- Speaker call
- Call detail recording
- Hotline destinations
- Text messages, advisory messages
- Internal calls
- Internal phonebook
- Customer database printout-
- Night service
- optiClient Attendant
- Park slot
- Prime Line
- Traffic restriction groups
- Voicemail
- Toll restriction

7.1 Tenant Service Configuration

Definition

The HiPath 3000/HiPath 5000 system can be used as a tenant service, which allows it to be used simultaneously by more than one customer. All features have the same functionality for all customers.

However, certain resources must be divided among the tenants (customers). They can be assigned to one, several, or all tenants. The resources to be divided are:

- Stations
- Routes
- Attendant P
- Intercept position
- Announcement devices, voicemail
- Traffic restriction matrix (CON matrix)
- Door opener
- Hotline
- DISA trunks
- Traffic restriction groups determine the ability of tenants to access each other.
- Hotline destinations can be configured for each system.
- A optiClient Attendant can be assigned to each tenant.
- Six MOH devices can be defined for six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. Which MOH device is used depends on the ITR group of the station that places the call on hold.
  You cannot use the logical port “0” as an MOH source.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of tenant service systems	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6(16 for V6.0 or later)
Hotline destinations	6	6	6	1
Announcement devices	16	16	4	1
MOH devices	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)	6 (16 for V6.0 or later)
Routes	16	16	16	8
Number of trunk group keys per optiset E or optiPoint telephone	6	6	6	6
Max. number of entrance telephones	4	4	4	4

Dependencies/Restrictions

Subject	Dependency/Restriction
Call detail recording central (CDRC)	Only one CDRC exists for all tenants.
Internal calls	Internal calls are possible between stations in different systems if allowed by the traffic restriction groups.
Prime Line	Prime Line can be configured only for the entire system.
Customer database printout	The database can only be printed for the entire system.
Internal phonebook	The internal phonebook displays the names of all stations and speed-dialing numbers in the system.
Switch	It is not possible to transfer undialed trunks.
Simplified dialing	Simplified dialing is not possible.
Speed transfer	Speed transfer is not possible.
Intercept	Intercept can be configured only for the entire system.

Subject	Dependency/Restriction
Tenant	Users can configure a maximum of six different tenants.
System configuration	The system configuration can be changed from only one telephone (programming telephone).

8 Other Features

8.1 Voice Channel Signaling Security

Implementing features, see also Manager E Voice Channel Signaling Security

Definition

This feature is a security device, which prevents tone injections in the voice channel. This avoids data corruption in the voice channel. A station configured as a fax machine automatically receives signaling security. In this state, no tones whatsoever are injected in the voice channel. Users cannot override this connection.

optiset E and optiPoint 500 telephones can also be protected by programming the feature Call Waiting Rejection in the database. Callers will not be able to camp on and will continue to receive busy tone.

This feature can only be set via database. For optiset E and optiPoint 500 display telephones, refer to the Requirements/Conditions table below for an alternative.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
S_0	This feature does not function with ISDN terminals.
Recalls	Recalls are postponed until the stations are free.
Call waiting	Call waiting tone can also be suppressed from optiset E and optiPoint telephones with display, using a procedure (*87=Call waiting tone off; #87=Call waiting tone on). This has no effect on display signaling.
Call hold	A station on hold always has signaling security.
Conference	If a station in a conference has activated call waiting rejection, an unprotected station can still be camped-on.

8.2 Date and Time Display

Implementing features, see also Manager E Date and Time Display

Definition

The system contains a real-time clock and a calendar. Each optiset E and optiPoint telephone with display indicates the time and date information based on this clock.

In the case of digital trunks (not for U.S.), the date and time are set automatically, provided that the information is transmitted from the central office (during the first outgoing call). The system changes automatically from standard time to daylight savings time (and vice versa).

In IP networks with HiPath 5000, clock synchronization is no longer implemented via ISDN but via the SNTP protocol.

When manually setting the time of day, observe the following:

- after a system boot
  The “ISDN time” always overwrites the time that was manually set after a system boot when the first outgoing ISDN trunk call is made.
- when the system is running
  If the time that was manually set differs from the “ISDN time” that is received by 2 - 70 minutes, the system uses the “ISDN time”.
  If the difference is < 2 minutes or > 70 minutes, the system uses the time that was manually set.

If it is not possible to synchronize using the ISDN trunk, the switchover data can be entered in a table that is internal to the system. Edit the table using HiPath 3000 Manager E.

The day and month when daylight savings time should begin or end is specified for each year. The system switches over, as appropriate, at 2 or 3 a.m.

The date can be displayed in the following formats:

- Europe: 20.JUN 01
- USA: JUN 20.01
- International: 20 JUN 01
- International 2: 20.06.01

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Date/time	Changes can be made from the configuration station only.

8.3 Relays

Implementing features, see also Manager E Relays

Definition

HiPath 3000/HiPath 5000 provide control outputs (relays) on an optional control relay module. This enables you to perform the following functions from any connected telephone by entering codes:

- Manual switch on and off
- Timer-controlled switch
- Door opener control
- Connection-controlled entrance telephone amplifier
- Door busy indicator for a configurable station
- Night bell
- Second ringer
- Announcement device start and stop control
- External music on hold (MOH) control
- Second ringer simulation type
- Simulation of call charge pulses
- Station active

The optional control relay modules STRB (with HiPath 3550 and HiPath 3350) and STRBR (with HiPath 3500 and HiPath 3300) can be implemented with four control inputs and four outputs each for functions such as monitoring, alarm, control and adjustment. This can be used in security systems or Property Management Systems (PMS). A control relay module can be connected for each system (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300). The relay card REAL which provides four control outputs is available for HiPath 3750 and HiPath 3700. The relay card REALS which provides four control outputs is available for HiPath 3800.

The signal input function (control input) is triggered by closing any of the external floating contacts. The external electric circuit is supplied by the control relay module and electrically isolated from the system controller by means of an optocoupler.

The relays can be controlled via codes from every connected telephone and remotely via the trunk line (DISA) by the station user associated with the relay function or for with the aid of the feature Associated Services.

Assigning Functions to the Actuators (Relays)

- **No function type**

  The relevant actuator is either not operating or is entered as a common ringer under Call management, Call destination lists.

- **Manually on and off type**

  The relay can be activated or deactivated for switching purposes by means of the codes Activate or deactivate selected switch. For key terminals this function can also be programmed on a key. A specific station, a group or all stations can be allocated to this relay type by selecting NONE. For this relay type, shutdown can be delayed if a value greater than 0 is entered in the Switching time field. The switching time is a multiple of 100ms.

- **Automatic off after timeout type**

  The relay can be activated or deactivated as a time switch by means of the code Activate selected switch (see above). For key terminals this function can also be programmed on a key. A specific station, a group or all stations can be allocated to this relay type by selecting None. The switching time is a multiple of 100ms.

- **Door busy indicator type**

  The relay is activated if the allocated station ceases to be in the idle condition. This means that the handset has been picked up, the loudspeaker is activated or the extension is being called. The relay is deactivated when the allocated station returns to the idle condition. This means that the handset has been replaced, the loudspeaker has been deactivated and the extension is not being called. The relay can also be activated directly by means of the code Activate/deactivate selected switch. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key.

  Practical uses: Door busy indicator Do not disturb, Meeting, Conference, PC connection for data transmission (power management). A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the switching time field. The switching time is a multiple of 100ms.

- **Second ringer simulation type**

  The relay is activated for the allocated station if it is being called. This relay is deactivated when the called party answers or the call is terminated. This relay is not clocked. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the switching time field. The switching time is a multiple of 3 seconds.

- **Door opening system type**

  See Automatic after timeout type. The text "Door opener" is displayed for the allocated terminals.

- **Doorphone amplifier type**

  The relay is activated when connected to the doorphone. The relay is deactivated when disconnected from the doorphone or entrance telephone/loudspeaker. This makes it possible to control a doorphone amplifier so that it is only activated when required. A doorphone or the loudspeaker port must be allocated to this relay type.

- **Music on Hold**

  The relay is activated if at least one station or a line in the system is not in the idle condition. The relay is deactivated if all stations and lines in the system are in the idle condition.

  Practical application: Activation of a tape device, CD player, PC connection power management, etc. "None" must be entered as allocated station for this relay type, and it must only occur once in the system. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered for the Switching time field. The switching time is a multiple of 100ms.

- **Station active**

  The relay is activated if the allocated station is active. This means that the handset has been picked up or the loudspeaker has been activated. The relay is deactivated if the allocated station resumes the idle condition. This means that the handset has been replaced or the loudspeaker has been deactivated. The relay can also be activated directly by means of the code Activate/deactivate selected switch. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the Switching time field. The switching time is a multiple of 100ms.

Assigning Actuator Names

Any names (up to 16 characters) can be assigned to the actuators to be administered.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	REALS	REAL	STRB / STRBR	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
DISA	Relays can be controlled from the outside via trunk access.

8.4 Sensors

Implementing features, see also Manager E Sensors

Definition

HiPath 3000/HiPath 5000 support control inputs (sensors) via an optional control relay module. When a sensor is activated, the assigned station is called automatically. After the station answers the call, a message can be played from an announcement device. The signal input function activates when an external floating contact closes. Optocouplers provide electrical isolation between the external circuit and the system controller.

The sensors can initiate the following functions:

- Distinctive ringing on telephones
- Message display on optiset E and optiPoint telephones with display
- Analysis of announcement device start and stop signals
- Answering machine control
- Automatic dialing with a predefined telephone number (internal number, group call or external destination call number)
- Activation of the following services for a STN (with code + STN):
  - Actuator on/off
  - Do-not-disturb feature on/off
  - Call forwarding on/off
  - COS changeover on/off
  - Send message texts
  - Withdraw message texts
  - Night service on/off
  - Ring transfer on/off
- Direct activation of the following services (without code+STN):
  - Actuator on/off
  - Use speed dialing system
- Error signaling; the following types are possible:
  - Display of programmable error message (sensor name, max. 10 characters: for example, Temp-Alarm) on a specific optiset E or optiPoint telephone (no acoustic signaling).

– Display of calls on a specific optiset E or optiPoint telephone with error message during call (destination station number)

– Error entry in error history (entry in error memory = activated)

Destination Call Number

An associated analog port is programmable for the sensors. This port is called by the system once a setup signal has been received. The calling party then overrides this connection. A recorded announcement can be activated via an answering machine connected to this port, which informs the dialed station of the response of the sensor. An analog port programmed in this way cannot be contacted from the outside.

If an external call number has been programmed for a sensor, but an analog port has not, the external connection will be established but an audible signal in relation to the response of the sensor is not transmitted. However, if necessary, the called STN can identify the origin of the call on the basis of the call number (CLIP).

Message Texts Box Control Data

Input of the control string with a maximum of 24 characters for the Phonemail system (mailbox call number). If the connection has been established, the control string is transmitted to the recorded announcement port. If a recorded announcement port is not available, the control string is transmitted to the destination.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	–	–	x	x
Hardware requirements	–	–	STRB / STRBR	
Software requirements	–	–	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Special ring	If the notified station is an internal station, a special ring sounds.

8.5 Multilingual Text Output

Implementing features, see also Manager E Multilingual Text Output

Definition

The language for display messages can be selected system-wide or for a specific station only. The following languages are available:

- Dutch*, English (UK), English (US), French, German, Italian*, Portuguese*, Spanish*

The languages marked ”*” are variable and can be replaced (overloaded) by one of the available languages from the list below. This is possible only with HiPath 3000 Manager E.
You cannot reload an individual text language. Variable languages that should not be replaced (overloaded) must therefore always be specified separately. It is not possible to reload a fixed language once it is already there.

Available languages: Catalan, Chinese, Czech, Danish, Dutch, English (UK), English (US), Estonian, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Serbo-Croatian, Slovak, Slovenian, Spanish, Swedish, Telekom (Germany), Turkish.

Note the following with regard to system-wide and station-specific language settings:

- **Default language setting**
  You set the language when you enter the country initialization code during system booting. The parameters for Germany are the defaults.
  If the APS does not contain the local language set during country initialization, it uses German as the default language until you replace one of the variable languages in the APS with the local language.
- **Changing the language setting system-wide**
  You can access system administration by entering a code or using the service menu on the first two telephones with display in the system. Other stations do not offer access to system administration. Select the desired language from the service menu to switch all stations to the new language.
- **Changing the language setting for an individual station**
  You can change language of individual stations only from the first two stations with display in the system. To change the language of a station, specify the station in the service menu and the language to be used.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Hardware require-ments	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
System administration	The following languages are not available for system administration: Czech, Serbo-Croatian, Slovenian, and Turkish.

8.6 Associated Dialing

Implementing features, see also Manager E Associated Dialing

Definition

With a PC, users can have the system set up a voice connection from one station (typically their own, but not necessarily so) to another station within the system. With analog telephones, the PC uses a dialing aid interface (Teleint in Germany). Another option is to connect a PC to an ISDN S_0 application bus.

Any authorized station in the system can execute associated dialing for another station. The user defines the station number of the destination station in the PC address book and activates dialing. The PC seizes the ISDN S_0 application bus and transmits the station number to the system using an ISDN message.

The user accesses the function by dialing a code and specifying the station for which a number should be dialed. The system then interprets this information as though the specified station were dialing.

Associated dialing makes fast and convenient dialing support possible by means of the PC on the S_0 bus or analog on an a/b interface. The link between the PC and the system telephone is established by a prefix in the call number of the target station. The prefix consists of an entry procedure and the internal call number of the system telephone for which dialing is performed. The user specifies the call number of the destination station in the PC address book (database) and then initiates dialing. The PC then accesses the S_0 bus or a/b port (via modem) and sends the call number to the communication system. If the number is prefixed by the entry procedure *(75)+67+ ext. no. (n digits) + route code for associated dialing, the digits that follow are interpreted as if the station specified in the entry procedure were dialing.

If the system telephone is idle, the first digit activates the loudspeaker and microphone.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Trunk group	Depending on the system configuration, you may have to dial a trunk group code in order to seize a trunk.
Call forwarding (CF)	A call waiting operation activated on the station for which the number is to be dialed is not carried out.

8.7 Associated Services

Implementing features, see also Manager E Associated Services

Definition

An authorized user can activate or deactivate services for any other station in the system using a procedure. Authorized users initiate access by entering a code and the station number that they want to activate or deactivate. The system behaves the same as if the initiating station were activating the feature for itself.

With this feature, users can control the following:

- Do not disturb
- Call forwarding
- COS changeover
- Group ringing
- Advisory message
- Hunt group
- Reset services
- Actuators
- Night answer
- Timed reminder
- Group call (Rejoin/leave hunt group)
- Reset activated features

The Associated Services feature permits an authorized IP phone, $U_{P0/E}$, a/b or S_0 station to activate or deactivate services for other users in the communications system. Authorized users initiate access in the same way as for associated dialing by entering the code * 83 and then the station number that they want to activate or deactivate. The system behaves the same as if station A were activating the feature for itself.

The associated introduction of services can also be activated via DISA or sensors. Services are activated/deactivated by system-external incentives (such as time-controlled night service).

This allows another station number to be dialed.

All features set by another station can be deactivated from the station on which the feature was set. If the destination station has the feature Lock Code active, services cannot be activated at that telephone. Likewise, a feature which was activated at a telephone before the telephone was locked and is still active, cannot be deactivated with the Associated Services feature.

The destination station must first be authorized in database (where this applies), in order to use the feature/function.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
S_0 telephones	From an ISDN terminal, dial the substitute code (75) for the asterisk (*).

8.8 Display Number of Stations with Direct Trunk Access (for Austria Only)

Implementing features, see also Manager E Display Number of Stations with Direct Trunk Access

Definition

You can use system administration to display the number of stations with direct trunk access available in the system. This includes all stations currently in operation which have at least outward restricted trunk access.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Display	Available in Austria only

8.9 Services in the Talk State

Definition

During a call, a station can activate services or perform administrative tasks in the system via system administration.

Users activate this feature by pressing the Program/Service key or, with a non-display or an analog telephone, by pressing the Consultation key or hook switch flash.

The features that can be activated during a call are identified in each of the descriptions.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call forwarding	Call forwarding can be activated during a call.

8.10 Reset Activated Features

Implementing features, see also Manager E Reset Activated Features

Definition

Users can reset all of the features currently set on the telephones by entering a code.

The following features can be reset:

- Call forwarding (CF)
- Send/cancel messages
- Advisory message
- Group ringing
- Hunt group
- Station number suppression
- Silent camp-on
- Do not disturb
- Ringer cutoff
- Timed reminder
- Cancel all callbacks

The system can also reset the above features per telephone from a local or remote location using the HiPath 3000 Manager E administration tool. The administrator first downloads the information to HiPath 3000 Manager E and working off-line can selectively view the state of each of the features activated on each telephone. In HiPath 3000 Manager E, the administrator can reset all these features on any telephone and upload the file to the HiPath 3000 system.

The following table illustrates the features that can be reset from the station by dialing the access code #0, individually.

Station	HiPath 3000 Manager E
Call forwarding (CF)	Call Forward on
Received messages	
Advisory message	Answer text
Group ringing	
Leave Hunt Group	Hunt group
Station number suppression	Suppress Calling ID

Station	HiPath 3000 Manager E
Call waiting tone	Call waiting tone
Do Not Disturb	Do Not Disturb
Ringer cutoff	Disable incoming ring

The additional features in the HiPath 3000 Manager E System Status - Flags screen: Room Monitor, Lock Code, Call Connection and Direct answering will not be deactivated.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Send messages	You can also use "Reset all services" to delete received messages.
Sensors/send messages	A warning can be sent via a sensor to a station in the form of a text message (send message) and then reset by a **different** relay.
Cancel all callbacks	Access the procedure from "Reset all services".

8.11 Relocate (Hoteling)

Implementing features, see also Manager E Relocate (Hoteling)

Note on the Relocate (Hoteling) Function
(see Section 8.11, on page 8-20)
In systems with the U.S. feature E911 emergency service activated:

- V3.0 SMR-7 or later: The Relocate feature guarantees that the LIN remains assigned to the physical port.
- V3.0 SMR-6 and earlier: you are not allowed to use the Relocate feature if the system has more than one Location Identification Number (LIN).

Definition

This is an expansion of the Relocate feature found in V1.0 or earlier.

The new Relocate feature allows an optiset E and optiPoint 500 station to use a procedure to change the assignment between the physical telephone port and the logical station data (user profile).

Example: the telephone used by station 220 is connected to the second port of the SLMO board in slot 01 (220 = 0102) and the telephone used by station 330 is on the fourth port of the SLMO board in slot 03 (330 = 0304). After executing the relocate function, the station data belonging to station 220 is assigned to the fourth port of the SLMO board in slot 03 (220 = 0304) and the data belonging to station 330 is assigned to the second port of the SLMO board in slot 01 (330 = 0102).

You may only exchange user profiles of the same type of optiset E or optiPoint 500 (key layout).
If you exchange user profiles from different types of optiset E or optiPoint 500, individually programmed key functions on the basic device are replaced with the default values.

You can also use Relocate on preconfigured SLMO or SLU boards, which means on boards that are not physically present, and on SLMO or SLU ports that do not have telephones connected.

Note on configuring the virtual HW ports: Virtual (not physically present) SLMO/SLU boards can be preconfigured with HiPath 3000 Manager E. Virtual (not physically present) optiset E and optiPoint 500 telephones (including their key standards and individual key programming) can be configured on the corresponding ports. After loading a CDB prepared in this way, you can perform the relocate feature between real and virtual telephones (stations). Virtual stations preconfigured in this way follow Call Management, but only after the Relocate feature has been performed once.

Examples: The feature is useful in companies that have a large number of field representatives. These staff members are provided with a pool of workstations in the company headquarters. Furthermore, a separate station configuration (station number, key programming, trunk access, etc.) is defined for each staff member. To carry out work at the company headquarters, the staff member selects a workstation and activates the Relocate feature on the accompanying optiset E or optiPoint 500 telephone. This provides him or her with his or her personal user profile (station configuration).

A customer has 24 hour help desk operation that does not use UCD. Each desk position will have three different users each day. With the Relocate feature enhancement a user will be able to relocate a virtual port configuration to any desk that is available. This will then allow the user to receive calls to the DID numbers assigned to that user.

An additional application of this Relocate feature would be if two users decide to change desk locations and both users share the same phone types. The users can easily perform the Relocate operation without the assistance of a Telecommunications engineer.

The feature must be released system-wide before it can be used. Proceed as follows to activate the feature on the optiset E or optiPoint 500 telephone (a lock code PIN is not required if the default PIN "00000" is being used):

- Enter "Relocate" code + internal number of the destination station + lock code PIN
- Start the service menu, enter “Relocate” + internal number of the destination station + lock code PIN
- Press the appropriate programmed key and enter the internal number of the destination station + lock code PIN

After you have entered the destination station number, no other stations may use the feature until the procedure has completed. When executing the exchange, both telephones involved are reset.

The display of the new station number (display "Stn. number: XXXXX") on both telephones signals that the feature has executed successfully.

Host (Master) Telephones

Only optiset E- and optiPoint 500 telephones are supported.

Supported Features

When the relocate feature is performed, the participating telephones will go out of service and restart. Activated features will be handled accordingly. That means that all callback calls and sent messages will be deleted, all other features remain unaffected.

Note on configuring the virtual HW ports: Virtual (not physically present) SLMO/SLU boards can be preconfigured with HiPath 3000 Manager E. Virtual (not physically present) optiset E and optiPoint 500 telephones (including their key standards and individual key programming)

can be configured on the corresponding ports. After loading a CDB prepared in this way, you can perform the relocate feature between real and virtual telephones (stations). Virtual stations preconfigured in this way follow Call Management, but only after the relocate feature has been performed once.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V1.0 SMR-J and later V1.2 SMR-E and later			

Dependencies/Restrictions

Subject	Dependency/Restriction
Host-client configuration (master-slave configuration)	You can only initiate the feature on optiset E or optiPoint 500 host (master) telephones in the idle state. The data from any client (slave) stations that may be connected will also be exchanged if a client (slave) is preconfigured for each port. In addition, the client (slave) must be active on the port where the procedure is being carried out. The affected client (slave) telephones are reset during the execution of the exchange, just as the hosts (master) are. In cases where, for example, a client (slave) is not active for only one of the telephone ports (for example, the adapter has been removed), only the host (master) telephone is relocated.
Host (Master) Telephones	Only optiset E and optiPoint 500 telephones are supported.
Client (slave) telephones	Client (slave) telephones can be $U_{P0/E}$ stations (optiPoint phone adapter), analog stations (optiPoint analog adapter) and S_0 stations (optiPoint ISDN adapter, only the default station of the associated port is considered here).

Subject	Dependency/Restriction
S_0 telephones	S_0 telephones do not use the Relocate feature These telephones operate automatically on any port, i.e. they do not require the Relocate feature. **Warning** In the case of S_0 telephones with LIN, the LIN must be manually updated via the HiPath 3000 Manager E when changing the telephone port.
E911 emergency service for USA	For V3.0 SMR-7 and later, the Relocate feature guarantees that the LIN remains assigned to the physical telephone port.
Manager T	It is not possible to execute the feature on telephones that have programming authorization.
DISA	You cannot execute the feature over DISA/DISA internal.
Associated services	If the user confirms the feature with associated services (default: *83<DID>#9419) the call does not follow call management for non-physical ports. It is not possible to activate the feature via associated services.
Physically not available stations	For incoming calls to stations, which are no longer physically available, the call follows the call management (CFW to PM instead dropping the call to the intercept). This mechanism is available 1 minute after proceeding with this feature or 5 minutes after a system hard restart.
Display status information	If a relocate session was successful the user will see in the optiset E or optiPoint 500 display status information. Higher prior display texts like "View Messages" cover up the status indication.
Key LED	The feature access can be set up on a key of an optiset E or optiPoint 500 station. The LED of this key will be never used.
Lock code	Hoteling is possible with code lock active. To delete the status indication, during code lock active, is possible.
Activation of relocate	Activation of the feature is only possible if the station is idle.
First two SLMO or SLU hardware ports	The feature cannot be accessed on the first two SLMO or SLU hardware ports.
optiClient 130	You cannot execute the feature with optiClient 130.
IP device	You cannot execute the feature with any IP device.
Associated dialing	It is not possible to activate the feature via associated services.
UCD	The feature cannot be executed if a UCD agent is logged on to a participating host (master) telephone.

Subject	Dependency/Restriction
Supported Features	When the relocate feature is performed, the participating telephones will go out of service and restart. Activated features will be handled accordingly. That means that all callback calls and sent messages will be deleted, all other features remain unaffected.

8.12 Automatic Wake-up System/Timed Reminders

Definition

Each user can program an appointment. When activated, a timed reminder is issued at the scheduled time. The appointment can be programmed for a single reminder (once within a 24-hour period) or for regularly scheduled daily reminders.

The time format is four-digits. The first two digits are the hour, and the second two digits are the minutes. A 12-hour clock mode is supported for the U.S.: users enter the four digits and then select "am" (key 2) or "pm" (key 7). The default is "am". The mode for all other countries is the 24-hour clock system.

The default timed reminder sounds for 20 seconds and will repeat a maximum of five repeats at 1-minute intervals. The timed reminder is cleared automatically as soon as the user lifts the handset or presses the speaker button, or after the fifth repeat (number of repeats is configurable). Alternatively, a programmed timed reminder can be canceled using a procedure. Display telephones also support queries.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum no. of timed reminders (system-wide)	50	50	50	50

Dependencies/Restrictions

Subject	Dependency/Restriction
Appointments	Standard analog telephones, optiset E entry, optiset E basic, optiPoint 500 entry, and cordless telephones support only programming of non-repeating (once only) appointments
Timed reminders	A timed reminder which is due but cannot be signaled (user busy, for example), is postponed until the next cycle.
Influence of other active features	Activation of other features such as call forwarding, do not disturb, group ringing, ringer cutoff has no effect on timed reminder, in other words the timed reminder is always issued at the telephone at which it was activated.

8.13 Delete All Station Numbers

Implementing features, see also Manager E Delete All Station Numbers

Definition

This feature allows you to delete all station numbers quickly and easily.

Using this feature, it is much easier to customize the default numbering plan when installing a new system or retain an existing numbering plan when replacing a non-Siemens system.

Type of Number	Default Station Numbers			Delete
	HiPath 3800 HiPath 3750 HiPath 3700	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3250 HiPath 3150 HiPath 3300**	
Station numbers	100-749	100-287 500-687	11-30 51-70	Yes
Station DID numbers	100-749	100-287 500-687	11-30 51-70	Yes
Trunk numbers	7801-7920	7801-7860	801-816	Yes
Trunk group codes (external codes)	0 = World 9 = U.S.	0 = World 9 = U.S.	0 = World 9 = U.S.	No
	80-84 850-859	80-84 850-859	82-88	Yes
USBS station number Internal & DID	891	891	891	Yes
IMOD station number Internal & DID	890	890	890	Yes
Digital modem Internal & DID	879	879	77 & 879	Yes
Group numbers Internal & DID	350-499 8600-8749	350-499	31-50	Yes
Internal attendant code (intercept station)	9 = World 0 = U.S.	9 = World 0 = U.S.	9 = World 0 = U.S.	Yes
DID attendant code (intercept station)	0 = World - = USA	0 = World - = USA	0 = World - = USA	No
Substitution for "*"	75	75	75	Yes
Substitution for "#"	76	76	76	Yes
Service codes	*xxx #xxx	*xxx #xxx	*xxx #xxx	No

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

8.14 Team/Top

Implementing features, see also Manager E Team / Top

Definition

Team/Top is based on MULAP lines, which are generally “looped” via several telephones. These telephones are combined in a MULAP group that has only one station number in the system (for more information, refer to Section 8.14.3).

8.14.1 Team Configuration

Implementing features, see also Manager E Team / Top

Example of a Team with Two Members

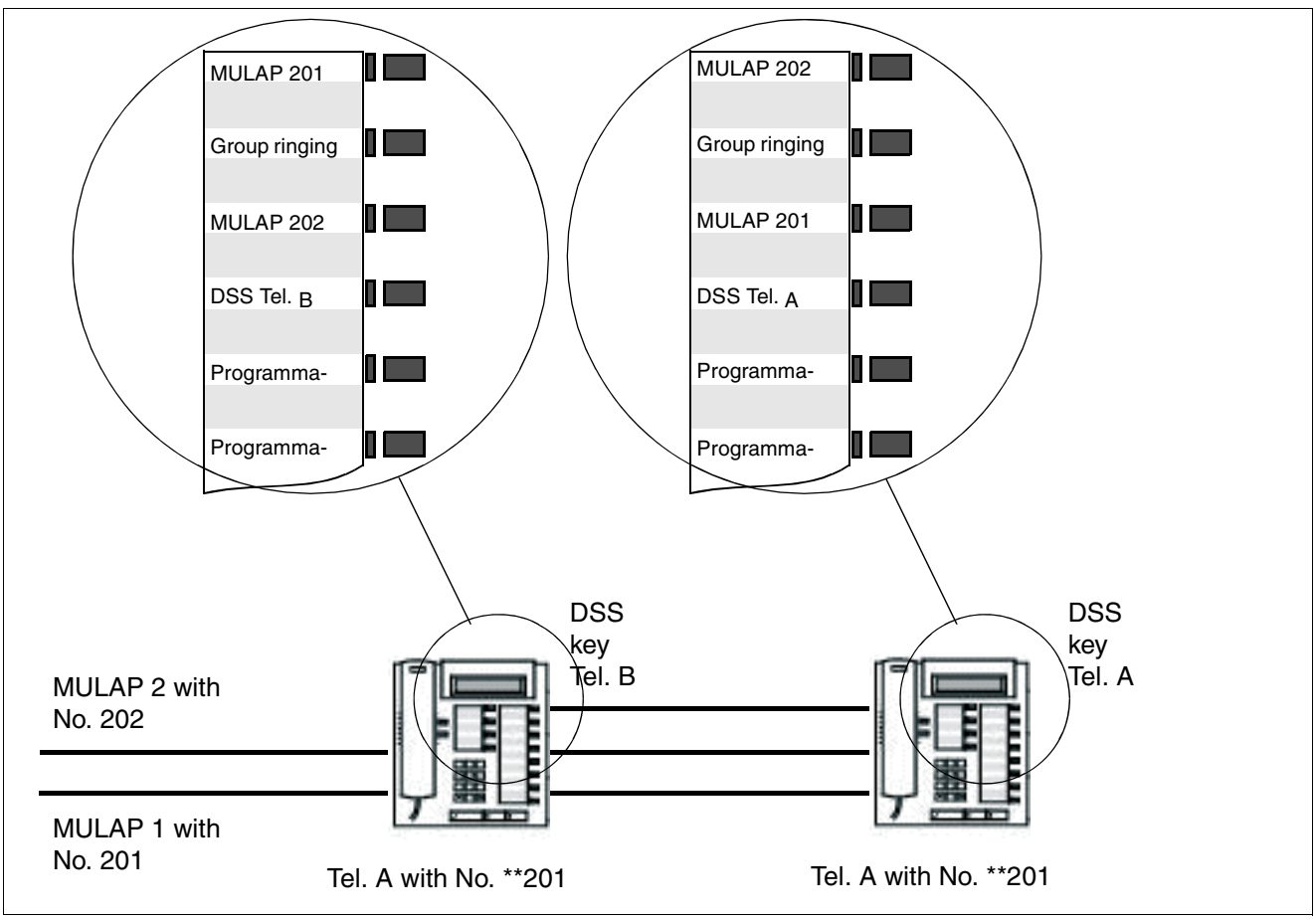


Figure 8-1 Example of a Team with Two Members

The Team configuration in Figure 8-1 includes the following components:

- MULAP 1 and MULAP 2: MULAPs (basic MULAP groups) that appear on both Telephone A and Telephone B.
- DSS keys: Telephone A to Telephone B and Telephone B to Telephone A.

A group call key allows you to activate or deactivate incoming MULAP call signaling.

Table 8-1 Transfer in Team (“Switch Lines for DSS” System Option Not Set) (Not for U.S.)

Operation	**Tel. A M1**	**Tel. A DSS Key B**	**Tel. B M1**	**Tel. B DSS Key A**
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing			
Tel. B is talking on M1	X	X	X	–
Tel. B presses DSS Tel. A key	X	XXXX	XX	X
Tel. B performs unscreened transfer to Tel. A (1)	XXXX	–	XXX	XXX
or				
Tel. A answers (2)	X	X	XX	X
Tel. B performs screened transfer to Tel. A (3)	X	–	X	X
1) Tel. B performs unscreened transfer; call is transferred to M1. 2) Tel. A answers and could answer the call on hold on M1 by call pickup (menu). 3) Tel. B performs screened transfer to Tel. A and Tel. A continues to conduct the call on M1.				

Table 8-2 Transfer in Team (“Switch Lines for DSS” System Option Set) (for U.S. only)

Operation	Tel. A M1	Tel. A DSS Key B	Tel. B M1	Tel. B DSS Key A
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing			
Tel. B is talking on M1	X	X	X	–
Tel. B presses DSS Tel. A key (1)	X	XXXX	XX	X
Tel. A answers (2)	X	X	XX	X
Tel. B goes on-hook (3)	XX	–	XX	–
Tel. A retrieves M1 (4)	X	–	X	X
1) Tel. B switches lines (exclusive hold), switches to the local station number and calls Tel. A under the local station number. M1 continues to be signaled as busy on Tel. A. 2) Tel. A can answer only by going off-hook or pressing the Tel. B DSS key. Tel. A then conducts the call under the local station number. 3) If Tel. B goes on-hook, the connection to Tel. A is released and M1 is placed on common hold. 4) Tel. A can retrieve the held call by pressing M1.				

Table 8-3 Team—Sequence of Operations for Consultation Hold on Second Line

Tel. A	M1	M2	Explanation
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing		
Call on M1	X	-	
Consultation hold	XX	-	Dial tone
Presses M2	-	XX	M1 is released, M2 is placed on consultation hold, dial tone remains.
Call on M1	X	-	
Ringing on M2	X	XXXX	If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring.
Consultation hold	XX	XXXX	Dial tone If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring.
Presses M2	-	XX	M1 is released, consultation call on M2.
Call on M1	X	-	
Switches to M2	XX	X	Dial tone

Table 8-3 Team—Sequence of Operations for Consultation Hold on Second Line

Tel. A	M1	M2	Explanation
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing		
Call on M2	XX	X	
Consultation hold	XX	XX	Dial tone
Presses M1	XX	-	M2 is released, consultation call on M1.

Tel. B	DSS Key A	M2	Explanation
Conducts call with Tel. A	X	-	Tel. A was called by means of DSS key A.
Consultation hold	XX	-	Dial tone
Presses M2	XX	XX	Consultation call on M2[1], dial tone remains.

1 Because of dual signaling, DSS key A continues to indicate call on hold (state of local station number is always signaled as well).

Example of a Team with Eight Members

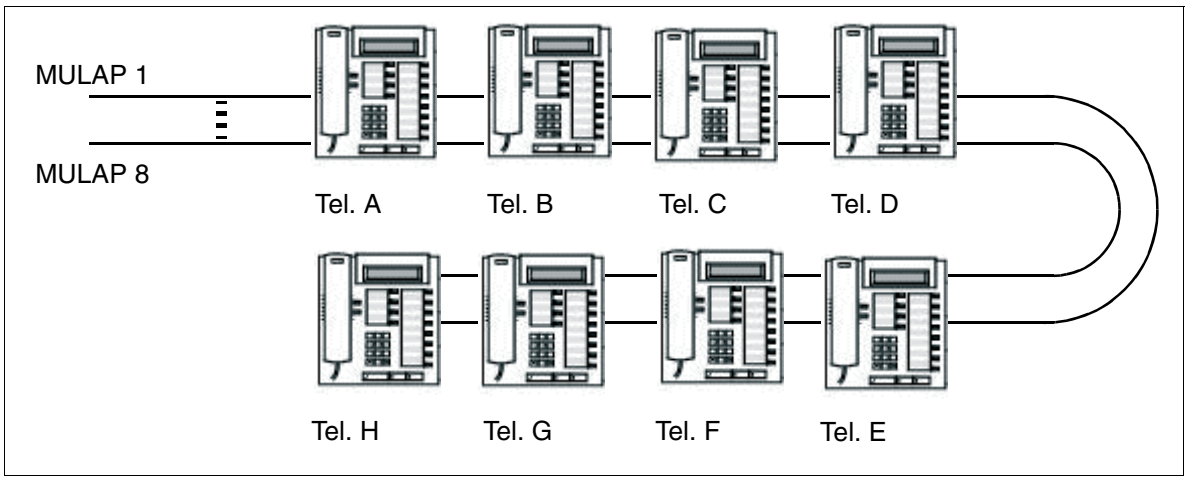


Figure 8-2 Example of a Team with Eight Members

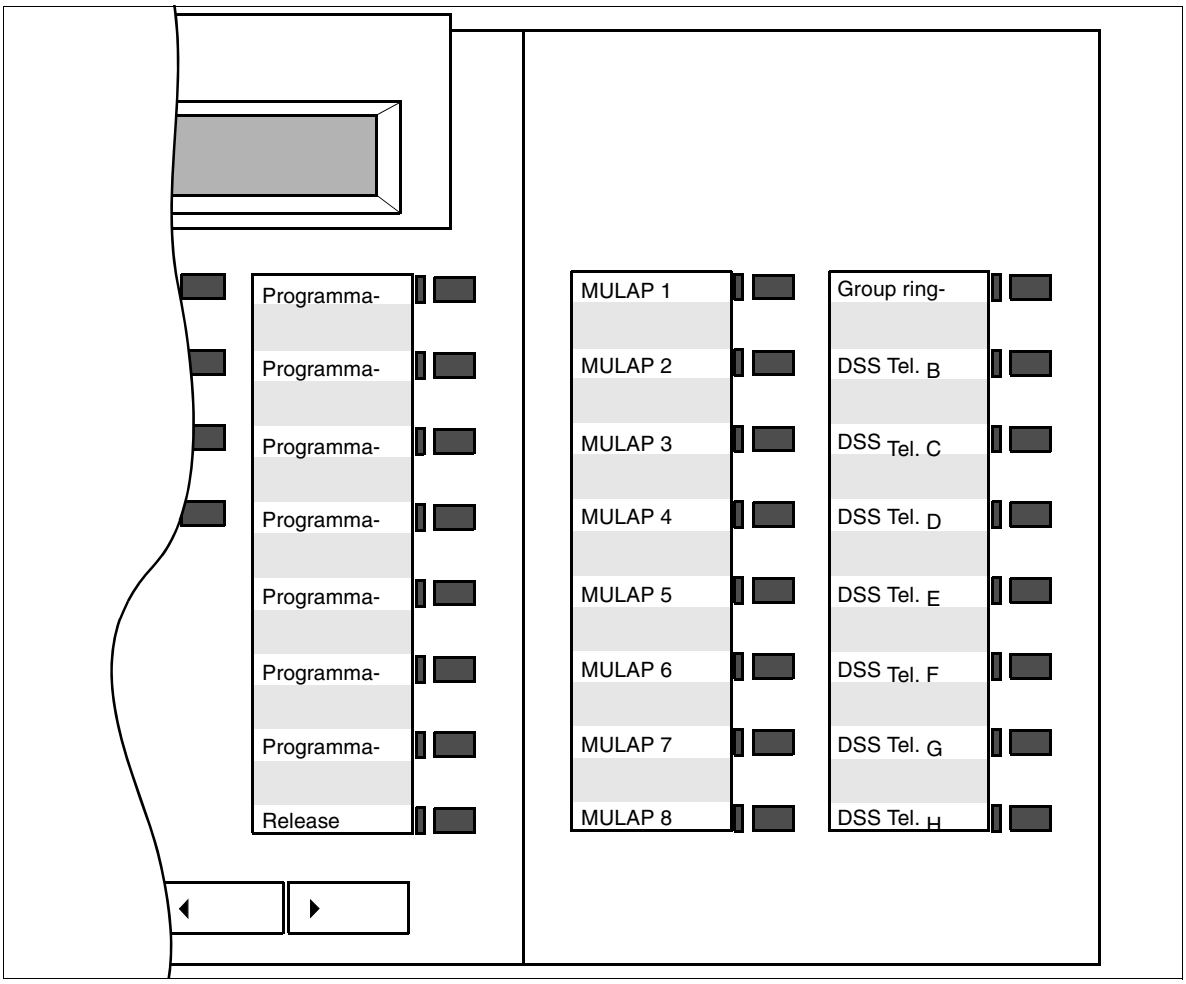


Figure 8-3 Team with Eight Members: Default Key Assignments for Tel. A on Key Module

The following options are available for assigning Team keys using HiPath 3000 Manager E:

- No key assignment
- Assignment to first or second key module
  A key module is automatically added. If applicable, existing keys are overwritten.
- Assignment to first free keys
  Free keys on the telephone and any existing key modules are used. If no keys are available, key modules are added. Key assignment sequence for Team: Local MULAP, Group Call key, other MULAPs, DSS keys.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum number of Team/Top configurations	500	500	50	10
Maximum number of stations (members) in a Team/Top configuration	10	10	10	8
Maximum number of telephones in a Team/Top configuration	10	10	10	8
Maximum number of MULAPs per telephone	32	32	32	10

Dependencies/Restrictions

Subject	Dependency/Restriction
Manually configured basic MULAP group	Members of a basic MULAP group can use key programming to • Configure a MULAP key for the basic MULAP group. • Configure DSS keys to other members. • Program a “Group Call” key.
Universal Call Distribution (UCD)	You cannot use MULAPs in the universal call distribution system.

Configuration Options

This feature can be configured using Manager T or HiPath 3000 Manager E.

Configuring the Feature Using Manager T

Teams should normally be configured using HiPath 3000 Manager E. Configuration using Manager T is possible only to a limited extent.

Configuring the Feature Using HiPath 3000 Manager E

HiPath 3000 Manager E can be used to configure a default Team (Team/Top mask). Members can be added to the team by drag and drop. The basic MULAP group(s) and DSS keys are configured automatically. The basic MULAP groups are assigned the station numbers of the primary station and the primary station is assigned a pseudo station number (examples: 4711 becomes **4711, 12345 becomes **2345, 654321 becomes **4321).

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure team (default)** Options
2.	Incoming calls
3.	Team/Top

8.14.2 Top configuration

Implementing features, see also Manager E Top Configuration

Example of a Top Configuration with One Executive and One Secretary

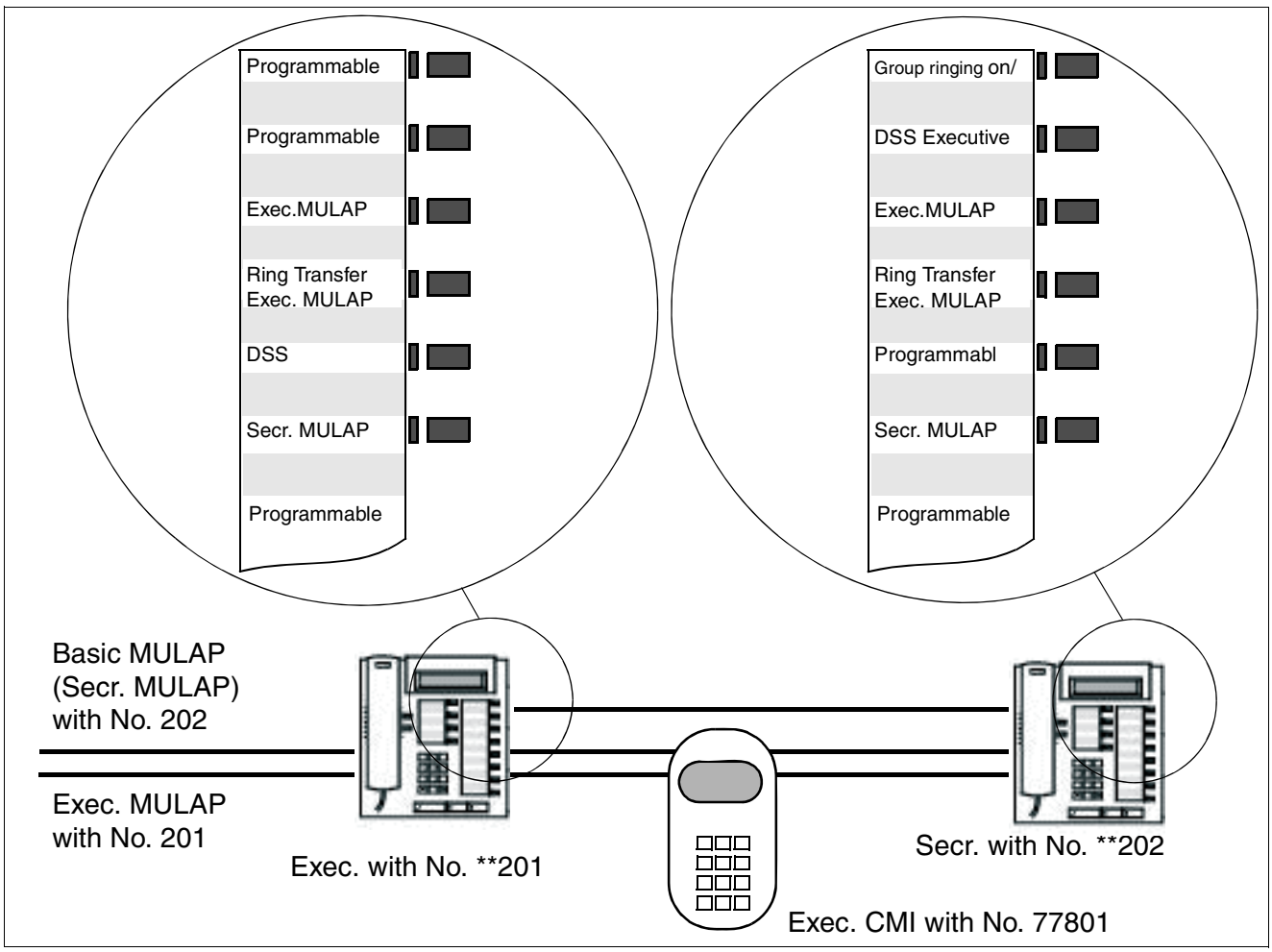


Figure 8-4 Example of a Top Configuration with One Executive and One Secretary

This Top configuration includes the following components:

- Executive MULAP 201 with an executive and executive CMI as executives and with a secretary as member.
- Basic MULAP 202 with a secretary as primary station and an executive and executive CMI as members.
- DSS keys: Secretary to executive (executive CMI) and executive to secretary.
- Ring transfer keys: For controlling incoming MULAP call signaling. The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary.

In addition, incoming MULAP call signaling can be activated or deactivated by means of a group call key (on non-executive telephones only). Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated.

Operation	Executive Telephone			Exec. CMI Mobile Tel.	Secretary Telephone		
	Exec. MULAP	Secr. MULAP	DSS Key Secr.		Secr. MULAP	Exec. MULAP	DSS Key Executive
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing						
Secr. is talking on exec. MULAP	X		X			X	
Secretary presses DSS Executive key (1)	X		XXXX	XXXX		XX	X
Secretary performs unscreened transfer to exec. or exec. CMI (2)	XXXX			XXXX		XXX	XXX
or							
Executive answers (3)	X		X			XX	X
Secretary performs screened transfer to executive (4)	X					X	X
1) Call signaled on executive MULAP and executive CMI. 2) Secretary performs unscreened transfer; call is transferred to executive MULAP. 3) Executive answers. Executive could also answer the held call on executive MULAP by call pickup (menu). 4) Secretary performs screened transfer to exec. and exec. continues to conduct the call on exec. MULAP.							

Operation	Executive Telephone			Exec. CMI Mobile Tel.	Secretary Telephone		
	Exec. MULAP	Secr. MULAP	DSS Key Secr.		Secr. MULAP	Exec. MULAP	DSS Key Executive
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing						
Secr. is talking on exec. MULAP	X		X			X	
Secretary presses DSS Executive key (1)	X		XXXX	XXXX		XX	X
Executive answers	X		X			XX	X
Secretary hangs up after executive answers (2)	XX					XX	X
Executive retrieves executive (3)	X					X	X
1) Secretary switches lines; executive is placed on exclusive hold; call signaled on exec. MULAP and exec. CMI. 2) Secretary goes on-hook; connection between exec. and secr. is released. Executive is placed on hold. 3) Executive can retrieve held call on executive MULAP.							

Example of Top with Two Executives and Two Secretaries

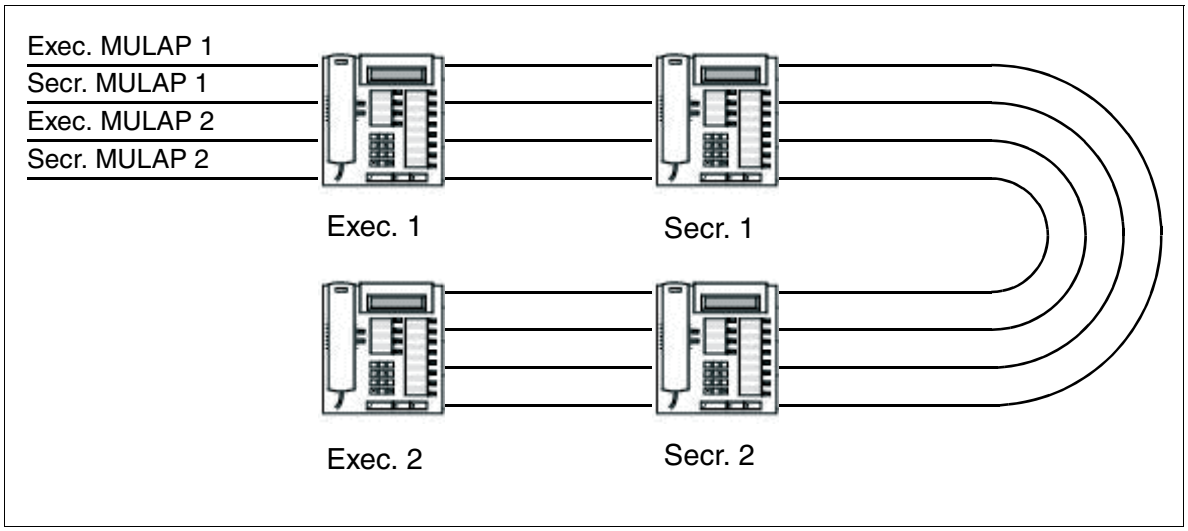


Figure 8-5 Example of Top with Two Executives and Two Secretaries

The following options are available for assigning Top keys using HiPath 3000 Manager E:

- No key assignment
- Assignment to first or second key module
  A key module is automatically added (refer to examples in Figure 8-6 and Figure 8-7). If applicable, existing keys are overwritten.
- Assignment to first free keys
  Free keys on the telephone and any existing key modules are used. If no keys are available, key modules are added. Key assignment sequence for Top: DSS Executive 1, Exec. MULAP 1, Ring Transfer Exec. MULAP 1, DSS Secretary 1 (on executive telephone) or Group Call (on secretary telephone), DSS Executive 2, Exec. MULAP 2, etc.

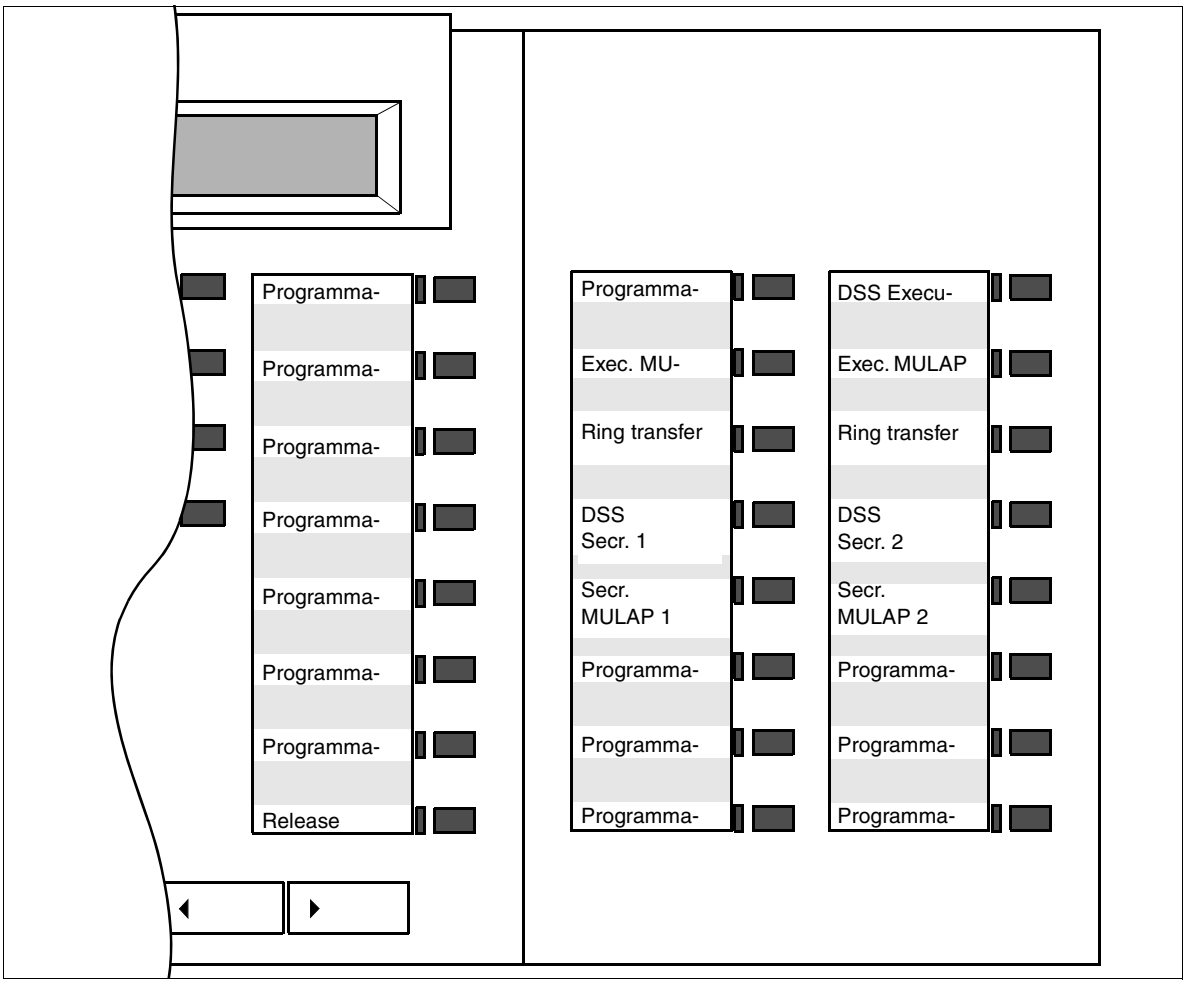


Figure 8-6 Top with Two Executives and Two Secretaries: Default Key Assignments for Executive 1 on Key Module

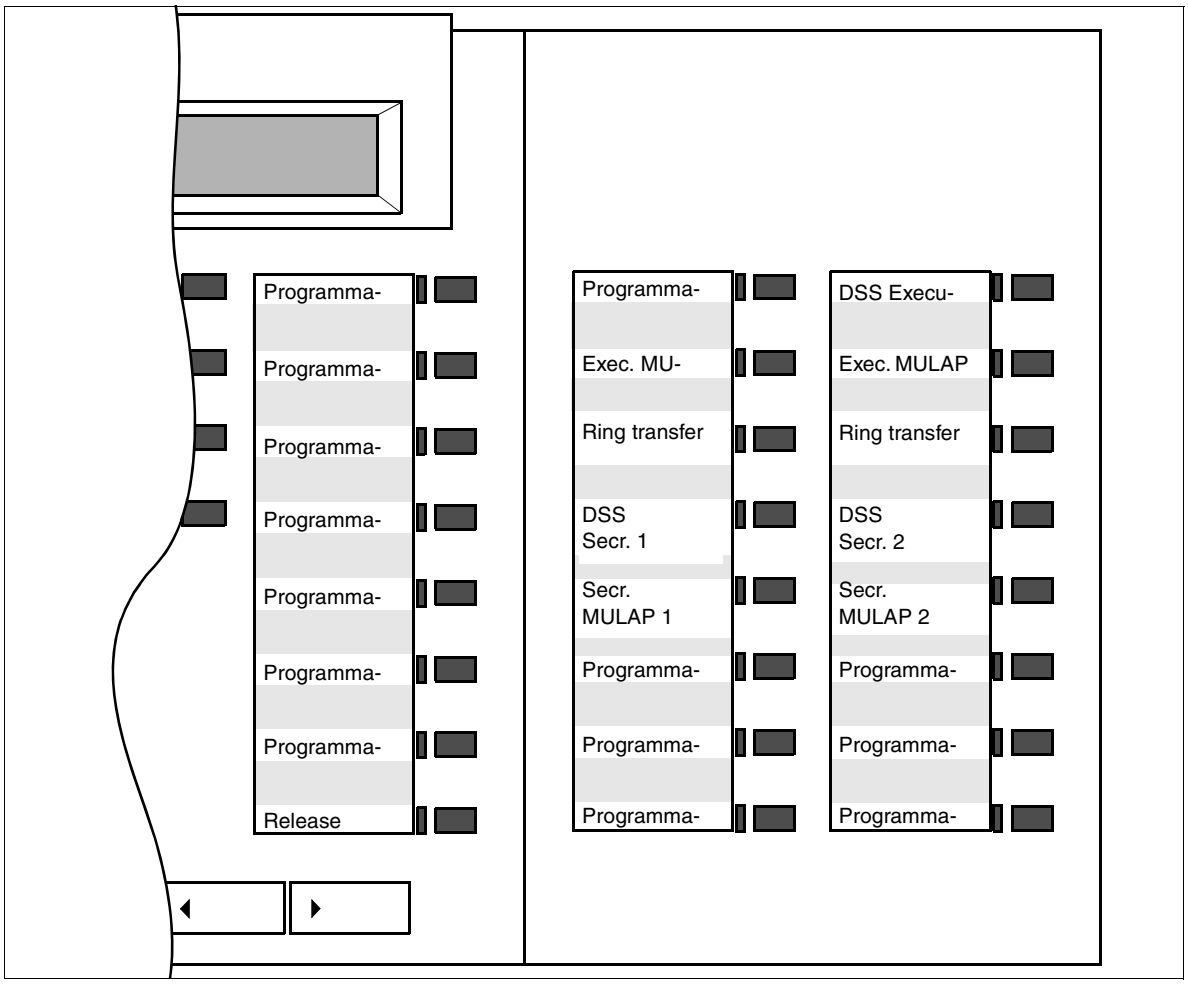


Figure 8-7 Top with Two Executives and Two Secretaries: Default Key Assignments for Secretary 1 on Key Module

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Maximum number of Team/Top configurations	500	500	50	10
Maximum number of stations (members) in a Team/Top configuration	10	10	10	8
Maximum number of telephones in a Team/Top configuration	10	10	10	8
Maximum number of MULAPs per telephone	10	10	10	10

Dependencies/Restrictions

Subject	Dependency/Restriction
Manually configured executive MULAP group	Members of an executive MULAP group can use key programming to • Configure a MULAP key for the executive MULAP group. • Configure DSS keys to other members. • Program a “Group Call” key. • Program a ring transfer key for each executive MULAP group. **Note:** In an executive MULAP group, the executive should program a DSS key to the secretary (station number) and the secretary should program a DSS key to the executive (station number).
Executive as primary station	An executive can also be a primary station in a basic MULAP group but can be defined as an executive only in an executive MULAP group.
Executive ring	If an executive in the executive MULAP group calls a non-executive in the local executive MULAP group, the call is signaled by a special, acoustic executive ring.

Subject	Dependency/Restriction
Group call key, incoming MULAP call signaling	• In the executive MULAP group, incoming MULAP call signaling can be administered only for non-executives. • Executives cannot configure a group call key (for activating and deactivating MULAP call signaling) for the executive MULAP group. If necessary, the ringer cutoff function can be used to deactivate the acoustic ring on an executive telephone. An advisory ring is issued. • Non-executives (secretaries) can configure a group call key for activating and deactivating MULAP call signaling. Ring transfer has priority; meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.
Call transfer key, incoming MULAP call signaling	• All members of an executive MULAP group can program a local ring transfer key for each executive MULAP. A secretary with multiple executives has multiple executive MULAPs and, therefore, multiple ring transfer keys. The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary. When the ring transfer key is pressed (LED on), MULAP call signaling is transferred within the executive MULAP group. Executives are signaled with MULAP call signaling and non-executives are signaled visually. • Calls between members of the executive MULAP group or within a Top are not affected by ring transfer: Executives in the executive MULAP group always ring. Calls to another executive MULAP group always take ring transfer into account. Exceptions: Calls set up by means of a DSS key. • Ring transfer can be activated or deactivated using a Code: Analog telephones, CMI telephones, optiset E and optiPoint telephones. Afterwards, the MULAP number must be suffix-dialed. **-** Menu (after dialing the ring transfer code): CMI telephones, optiset E and optiPoint telephones with display. • The ring transfer state is not indicated by a special dial tone. • Ring transfer has priority; meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.
Conversion to V1.0	Top functions (executive/secretary) from earlier releases of Hicom 150 E Office (such as Rel. 2.2) cannot be converted to HiPath 3000/ HiPath 5000 V1.0.

Subject	Dependency/Restriction
Top Configuration	If the Top configuration has more than one executive and one secretary, you need to use a key module.
Universal Call Distribution (UCD)	You cannot use MULAPs in the universal call distribution system.

Configuration Options

This feature can be configured using Manager T or HiPath 3000 Manager E.

Configuring the Feature Using Manager T

Tops should normally be configured using HiPath 3000 Manager E. Configuration using Manager T is possible only to a limited extent.

Configuring the Feature Using HiPath 3000 Manager E

HiPath 3000 Manager E can be used to configure a default Team (Team/Top mask). Members can be added to the team by drag and drop. The executive MULAP group, basic MULAP group and its MULAP key, and the ring transfer and DSS keys are configured automatically. The basic and executive MULAP groups are assigned the original station numbers of the primary station/executive and the primary station/executive is assigned a pseudo station number (examples: 4711 becomes **4711, 12345 becomes **2345, 654321 becomes **4321).

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure Top (default)** Options
2.	Incoming calls
3.	Team/Top

8.14.3 MULAP Groups

There are two types of MULAP group:

- **Basic MULAP groups**
  These groups form the basis for Team configurations. In addition, secretary MULAPs are configured by means of basic MULAP groups.
  Members can be primary stations, primary station CMIs and non-primary stations.
  Primary stations and primary station CMIs are automatically assigned the “outgoing preference” and incoming MULAP call signaling (tone, LED and display).
  The following can be administered:
  - Outgoing preference” for all masters and master CMIs
    This includes automatic outgoing assignment.
  - "Incoming preference" for all members
    This includes automatic incoming assignment.
  - Incoming MULAP call signaling for all members.
  - DSS keys for all members.

  All members can activate and deactivate MULAP call signaling for each MULAP using a key (Group Call).

- **Executive MULAP groups**
  These groups form the basis for executive/secretary configurations (Top). All members of the Top (CHESE) become members of the executive MULAP; the executive(s) function as primary stations.
  The following members are possible: Executive 1, 2 ..., CMI executive 1, 2 ..., conference corner tel. executive 1, 2 ..., secretary 1, 2 ..., CMI secretary 1, 2 ...
  An executive MULAP group defines which executive members will be masters. These members are automatically assigned the "outgoing preference" without incoming MULAP call signaling (tone and display).
  All non-executives (= non-primary stations) are automatically assigned incoming MULAP call signaling (tone, LED and display).
  The following can be administered:
  - “Outgoing preference” for all executives, CMI executives and conference corner telephone executives.
  - "Incoming preference" for all members
  - Incoming MULAP call signaling for all non-executives
  - DSS keys for all members
  - Ring transfer key

  Non-executives can activate and deactivate MULAP call signaling using a key (Group Call).

Secretary MULAPs are configured by means of basic MULAP groups.

Telephone Types

The following types of telephone can be defined as both primary stations and non-primary stations in a basic or executive MULAP group:

- Analog telephones
- Cordless telephones (CMI)
- optiPoint 400
- optiClient 130
- all optiPoint 500 telephones described in the Service Manual HiPath 3000/HiPath 5000 V4.0 and the optiset E telephones described in the Hicom 150 H V1.0 Service Manual
- optiPoint 600 office

LED Statuses of a MULAP Key

The LED for the MULAP key indicates the status of the MULAP group and can assume the following signaling statuses:

- LED off = MULAP free (seizure possible).
- LED on = MULAP busy (seizure not possible).
- LED flickering = MULAP being called (call can be answered).
- LED flashing slowly = MULAP on hold (call can be retrieved or picked up).

A key can be configured for a MULAP group number on each station (including on a optiPoint BLF busy lamp field and optiClient Attendant).

LED Statuses of a DSS key

The LED for the DSS key indicates the status of the DSS destination as follows:

- LED off = DSS destination is free.
- LED on = DSS destination is busy (off-hook, in talk state, etc.) or the telephone on which the DSS key was configured is calling the destination.
- LED flashing rapidly = The telephone (DSS destination) is not being called by a DSS key. Example: Telephone A has a DSS key to telephone B. Telephone C calls telephone B. The DSS key LED on telephone A flashes rapidly.
- LED flickering = The telephone (DSS destination) is calling the telephone on which the DSS key was configured.

- LED flashing slowly = The telephone on which the DSS key was configured has placed a destination on hold.

Privacy Release Key

With Version 6.0 and later, there is a new "Privacy Release" state; a new key has been created in the database for this purpose. This key is supported by the following workpoint clients:

- optiset E
- optiPoint 400
- optiPoint 500
- optiPoint 600
- optiClient 130

Privacy Release MULAP means that you can release the seized MULAP line for a conference call by pressing the "Privacy Release MULAP" key during a call. This is signaled to the other MULAP members by a flashing MULAP key. The other members can join the call by pressing the flashing MULAP key. A conference call is then set up, which is signaled acoustically and by a message in the display.

All stations in a MULAP group can program a key for Privacy Release. Privacy Release is also supported if a user is on a conference call, even if they initiated the call themselves.

The Privacy Release Key can be configured via Manager E.

LED Status of the Privacy Release Key

- LED off = basic status of the key (Privacy Release deactivated)
- LED on = after the key is pressed (Privacy Release is activated)
  When you press the key again, Privacy Release is deactivated again.

During a MULAP call, the key can be activated/deactivated.

8.14.3.1 General MULAP Functionality

Incoming Calls to a Free MULAP

All the members of the MULAP group have deactivated the MULAP ring (group call off) and/or have activated do not disturb.

The MULAP is busy and the caller receives a busy signal. There is no call signaling on the MULAP.

Incoming Calls to a Free MULAP

At least one member of the MULAP group has activated the MULAP ring (Rejoin hunt group) and deactivated do not disturb.

The call is signaled on all members of the MULAP group (LED).

- Members of the MULAP group who are currently free, have activated the MULAP ring, and have not activated do not disturb are also signaled by an acoustic ring and display.
- Members of the MULAP group who are free and have activated the ringer cutoff feature are also signaled by an advisory ring.
- Busy stations in the MULAP group (busy on another line) that have activated the MULAP ring and have not activated do not disturb are signaled by
  - An acoustic advisory ring (single ring) and, after scrolling, an “Accept call waiting” message on optiset E and optiPoint telephones.
  - An advisory tone (single short tone) on analog, CMI and optiset E and optiPoint telephones without display.
    The latter is not affected by do not disturb.

The advisory ring is also issued for calls to the local station number (for example, call to DSS key or call to general call key).

Incoming Calls to a Busy MULAP

All the members of the MULAP group are busy.

- An internal caller receives a busy signal and camps on after a timeout. An external caller camps on immediately.
- The busy members of the MULAP group are signaled by:
  - A call waiting tone and, after scrolling, an “Accept call waiting” message on optiset E and optiPoint telephones.

  - A call waiting tone on analog, CMI and optiset E and optiPoint telephones without display.

- In the case of busy MULAP group members who have activated do not disturb, the caller receives a busy signal regardless of whether the station has activated or deactivated the MULAP ring.
  There is no change in signaling for any “other” members of the MULAP group.

Answering of Incoming Calls

Signaled MULAP key (LED with call signaling)

Calls can be answered by going off-hook, pressing the speaker key or pressing the MULAP key.
If the user goes off-hook or presses the speaker key, the incoming preference applies (automatic incoming seizure).

An incoming call (LED with or without call signaling) can always be answered using the MULAP key, regardless of the incoming preference.

Incoming Preference

Incoming preference (automatic incoming seizure)

- Although the MULAP settings determine the incoming preference, this setting applies to a particular telephone. If more than one MULAP is connected to a telephone, an incoming preference can be set for each MULAP. Only the last setting entered for the incoming preference applies to the telephone.
- If incoming preference is deactivated, a call cannot be answered by going off-hook or pressing the speaker key; the system attempts to execute an outgoing seizure.
- If “No incoming preference” is selected for a telephone, the setting applies to all incoming calls to this telephone. Calls to the local station number can be answered only by pressing a station number, DSS or general call key.

Outgoing Calls

Initiating an outgoing call

An outgoing call can be initiated by going off-hook, pressing the speaker key, or pressing a call, digit, MULAP, station number or DSS key.

When an outgoing call is initiated, a station number is assigned and the called party is displayed. In the default configuration (device without MULAP), the local station number is assigned when the line is seized. If seizure is via a MULAP, the MULAP group number is assigned.

Outgoing Preference

Outgoing preference (automatic outgoing seizure)

- Each station is assigned an outgoing preference.
- The primary stations in the MULAP groups and the executives in the executive MULAP groups are assigned the MULAP group number as a preference. Primary stations and executives always have the same preferences.
- If the outgoing preference for a primary station or executive changes, it is also changed for the other primary stations and executives in this MULAP group.
- When the user goes off-hook, presses the speaker, station number, MUSAP or general call key, or dials while on-hook, the preference is assigned as a station number for the outgoing seizure.
  If the MULAP preference is busy when the user goes off-hook or presses one of the above-mentioned keys, an overflow to the local station number is possible only on analog, CMI and optiset E entry telephones. Other optiset E and optiPoint telephones must select a free trunk.
  Application: An executive CMI goes off-hook. The executive MULAP (its outgoing preference) is still seized by the secretary. The executive CMI receives a dial tone (overflow) for the local station number. At the end of dialing, the station number of the executive MULAP appears in the display of the called party.
- If the user presses a MULAP key, the outgoing preference is not used. Instead, the group number of the MULAP key is used.

Busy Signaling

If one MULAP group member presses the MULAP key or seizes the MULAP by preference (goes off-hook, presses the speaker key or dials while on-hook), MULAP keys indicate the busy state on all the stations in the MULAP group.

Station Number Key, DSS Key

- The destination of a station number key can be a station number or a group number. An outgoing seizure using a station number key is output to the outgoing preference. If the outgoing preference is a MULAP, the MULAP is also seized. If a station number key is activated during a call on a MULAP, the call is placed on consultation hold.
- The station number is always entered as the destination of a DSS key. It is also possible to configure destinations that do not belong to a basic or executive MULAP group.
- Differences:

  - A DSS key bypasses the outgoing preference and the local station number is always output (a MULAP is not seized).
    –A DSS key switches lines (for U.S. only) or initiates consultation hold (not for U.S.) if the active call is being conducted on a MULAP.
  - At the destination, a DSS key bypasses call management and ring transfer but follows call forwarding.

- DSS on executive or primary station:
  Executive stations in the executive MULAP group or primary stations in the basic MULAP group are representative of the group status. In other words, as soon as one is busy, the DSS and station number keys indicate busy.

Line Switchover

- Line switchover is possible only from the call state. Otherwise, the line is released.
  A line switchover is always executed between two MULAP keys.
  Between a MULAP and a DSS key,
  - A line switchover is executed = for U.S. only
  - Consultation hold is activated = not for U.S.
    The setting is selected by means of the “switch lines for DSS” option, which is part of the country default settings.
- After pressing the hold key, the party initiating hold receives a dial tone (on the outgoing preference) and can set up an outgoing call or answer an incoming call on another line key.
- If a user presses another free, calling or held MULAP key (line switchover) during a call (outgoing or incoming) on a MULAP key (call state), the first MULAP is also placed on exclusive hold.
- The party who initiated hold can retrieve a MULAP on exclusive hold at any time by pressing the MULAP key. The active call is then placed on exclusive hold.
- Both external and internal calls can be placed on hold. All the members of the MULAP can retrieve a MULAP on common hold at any time.

Call Pickup

Calls to MULAP groups are not signaled in any call pickup group and cannot be picked up.

Night, Intercept and Overflow Destinations

MULAP groups can be used as night, intercept and overflow destinations.

Internal Phonebook

Administration (Manager T/HiPath 3000 Manager E) indicates which station number or name will appear when the directory is displayed.

Call Forwarding

CFW destination

A MULAP group can also be a call forwarding destination.

Call forwarding per MULAP group

- After dialing the CF-per-MULAP code, the user must enter the MULAP number. optiset E and optiPoint telephones with a display and CMI telephones use the same menu system as a CF device.
- The user must also enter the MULAP number when programming a CF-per-MULAP key. The menu system is the same as for a CF key.
- Instead of entering the MULAP number, the user can press the MULAP key.
- A partially programmed (with MULAP number, without CF destination) or fully programmed (with MULAP number and CF destination) CF-per-MULAP key can also be programmed.
- For each MULAP, a CF-per-MULAP key with an internal or external destination can be configured for each telephone.

Call forwarding via associated services

In this case, the MULAP number must be entered twice, once to indicate the source and once to indicate the trunk:

Execution of call forwarding

- When a forwarded MULAP is seized, a special dial tone is activated.
- When a call is forwarded, a CF device has priority. A call is forwarded to the station CF destination. If CF per MULAP is activated, the call is forwarded to the MULAP CF destination.
- There is no parallel signaling on the MULAP and CF destination. Only the call forwarding destination is called.

Secretarial function transfer

Using the ring transfer function, the secretary can switch calls to the executive and initiate a secretarial function transfer by means of CF per MULAP. The deputy can override call forwarding (caller is a CF destination), in which case the executive is called directly on the MULAP.
The executive can receive calls directly by deactivating CF per MULAP.

Results and signaling of a CF device and CF per MULAP

- If a CF device is activated for a primary station or executive, this state is indicated by a special dial tone on all the primary station or executive telephones within the same MULAP. The CF device can be deactivated from any primary station or executive telephone.
  The CF destination is stored in the telephone that initiated call forwarding. CF is signaled (LED, display and special dial tone) on all primary stations or executives.
- If CF per MULAP is activated, this state is indicated by the LED for the CF-per-MULAP key (fully and partially programmed) of all the members of the MULAP group (no continuous display). Any member of the MULAP group can deactivate CF per MULAP.
- If a MULAP is entered as a CF destination, this state is indicated by the CF device LED (slowly flashing) of the primary stations in the MULAP group and by the CF-per-MULAP LED of all the members.
- If a member attempts to activate CF per MULAP and a primary station has already activated a CF device, a warning is issued. The action is not executed until the primary station deactivates the CF device.

Number/Name Display

- When an outgoing call is set up, a station number is assigned (local station number or MULAP group number).
- When an incoming MULAP call is answered, the MULAP group number is assigned.
- In the case of calls to a MULAP:
  - Before the call is answered, the display of the calling party shows the MULAP name and/or MULAP number being called.
  - After the call is answered, the display of the calling party shows the station name and/or MULAP number of the answering party.
- In the case of calls from a MULAP station (MULAP key or preference), the display of the called and answering parties always shows the station name and/or MULAP number.
- The following generally applies to outgoing seizures: If a station conducts a call using the local station number and the outgoing preference differs from the local station number, the display of the called party always shows the station number of the outgoing preference.

Consultation Hold, Recall, Conference

Consultation hold state

The following activities are among the options available in the menu in the consultation hold state:

- Return to held call
- Toggle
- Transfer
- Conference

When the user goes on-hook, the call is transferred or an immediate recall is performed.

Consultation hold on local MULAP

If a MULAP group member is a primary station, it can reach the other members of the same MULAP by activating consultation hold and then dialing the local MULAP number. This is useful if no station number key or DSS key is configured or if the station number of the member is unknown.

Example of an application: An executive wishes to transfer the call to his or her CMI or conference corner telephone. The executive activates consultation hold on the local executive MULAP. Only the executive stations ring because ring transfer within the executive MULAP is ignored. The executive can pickup the call on his or her CMI or conference corner telephone.

Unscreened and screened transfer (important Top feature)

If a member of the local MULAP is called while on consultation hold (by dialing the local station number, pressing the station number key or pressing the DSS key (not for U.S.)), the ring/call continues to be signaled/conducted on the MULAP after the transfer. Before the transfer, “common hold” is signaled on both MULAP members and the held call can be picked up.

Recall after transfer, hold or immediately after going on-hook during consultation hold

This function is signaled only on the MULAP station initiating consultation hold or hold. The MULAP LED indicates a call (busy indication on all other MULAP stations). The call is always signaled by an acoustic ring and display (MULAP ring and group call are ignored).

Consultation hold on second line

“Consultation hold on a second line” occurs when a second MULAP line is activated after consultation hold is initiated from a MULAP line.
This function is useful when activating features that can only be activated from consultation hold (such as transfer and conference).

Once a second line has been placed on consultation hold, the first line is released.

Example of an application: A call is being conducted on MULAP M1. Switch to MULAP M2 by pressing the trunk key, this places M1 on exclusive hold. A new connection is set up on M2. To include the M1 party in the conference, press Consultation - M1 - (M2 is released) - Conference. The conference continues on M1.
Instead of being added to a conference, the call can be transferred. In this case, the two parties are interconnected. M1 becomes free.

Conference

A conference can always be initiated or expanded (to maximum five participants).

Callback, Message Waiting, Caller List

- Callback and Message Waiting are station-related features. If a member of a MULAP initiates a callback or sends a text message, the sender (i.e. only the initiating station in the MULAP) is called back.
- When the callback is initiated on a busy MULAP, it is executed as soon as the MULAP is released.
- When the callback is initiated on a free MULAP, the primary stations of the basic MULAP or the executives of the executive MULAP are monitored. The callback is not executed until a primary station or executive has been activated.
- The MULAP is always called when the callback is executed. This means that a callback initiated on a free executive MULAP will also call the executive MULAP when it is executed.
- When a user sends a text message to a MULAP, the message is delivered to all the primary stations in the basic MULAP or all the executives in the executive MULAP.
- The message waiting LED for the mailbox is also activated on all the primary stations in the basic MULAP or executives in the executive MULAP.
- MULAP calls are indicated only in the caller list of the primary stations and executives.
- When making an entry in the caller list, only the station called will be entered.
  This entry is extended depending on whether or not
- the station called is a MULAP number AND
- MULAP call forwarding is active for this MULAP AND
- the system flag is set.

The caller list entry is saved for the destination station if these conditions are satisfied.

8.15 Storing Procedures on Procedure Keys

Implementing features, see also Manager E Storing Procedures on Procedure Keys

Definition

This feature allows the user to configure procedure keys and to program them with procedures. The programming (storing) follows the same steps as the normal execution of a procedure.

If you use a procedure key during a call, DTMF signals are automatically sent in the B channel. A consultation hold is not initiated.

Procedures can contain internal and external station numbers and additional information. Some of the possibilities are:

- Acc. code + trunk code + destination station number
- Trunk flash code + destination station number
- Code numbers for control of services + destination station number
  (such as send/query message (Message Waiting): * 68 + station number + text number.)
- Digit combination for Voice Mail or for answering machine
- Call waiting or busy override when destination station is busy
- Initiation of a callback when destination station is idle or busy

The following table shows which services (features) can be programmed on procedure keys. The table also shows any conditions that apply to the use of the procedure keys.

You can find the corresponding codes for activating/deactivating the following services (features) in the Service Manual HiPath 3000/HiPath 5000.

Feature	Use of the Procedure Key not Possible						Comments
	in the digit input state (no digit dialed)	in the digit input state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Switch relays on			X			X	
Switch relays off			X			X	
Directed call pickup		X	X		X	X	
Call Forward on, (not for tenant systems and not for individual MSNs of a S_0 trunk connection)			X			X	

Feature	Use of the Procedure Key not Possible						Comments
	in the digit input state (no digit dialed)	in the digit input state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Call forwarding, external, on (not for tenant services)			X			X	Key with toggle function
Call forwarding, logon			X			X	Key with toggle function
Call forwarding, night destination on			X			X	Key with toggle function
Call forwarding per MULAP							
Advisory message on			X			X	Key with toggle function
Associated Dialing							
Associated Services			X			X	
Speaker call		X	X		X	X	
Whisper/Off Hook Announcement		X	X		X	X	
Flash on analog trunk							
Release trunk (emergency trunk access)			X			X	
Send messages (message waiting)			X			X	
Dial station speed dialing			X			X	
Dial system speed dialing			X			X	
DTMF transmission	X	X	X		X	X	
DTMF transmission in the talk state using procedure key							
Night answer off			X			X	Key with toggle function
Night answer on			X			X	Key with toggle function
Park on	X					X	Key with toggle function
Retrieve call		X	X	X	X	X	Key with toggle function
Account code (ACCT)		X	X		X	X	
Account code ACCT in prefix		X	X		X	X	

Feature	Use of the Procedure Key not Possible						Comments
	in the digit input state (no digit dialed)	in the digit input state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Radio paging system, page							
Radio paging system, answer							
Callback requests - display or delete		X	X	X	X	X	Key with toggle function
Ringing Group			X			X	Key with toggle function
Ringing group off - all members removed			X			X	Key with toggle function
Silent Monitoring		X	X		X	X	
Voice selections							
Telephone Data Service TDS			X			X	
Door opener via adapter box							
Automatic wake-up system: activate appointment							Key with toggle function
Automatic wake-up system: deactivate appointment							Key with toggle function
Retrieval of an external call from common hold							
System telephone lock		X	X		X	X	

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Procedure length	A maximum of 32 characters can be stored in a procedure key.
optiClient Attendant	It is not possible to configure procedure keys.
Second key level	No procedures can be configured on the second key level (Shift).
Pause	A pause can be inserted in the programming process by pressing the redial key.
Suffix-dialing	Procedure keys can be used in suffix-dialing.
PIN	It is not possible to program procedures that require a PIN (such as activating or deactivating an individual lock code).

8.16 Customer-Specific Display

Implementing features, see also Manager E Customer-Specific Display

Definition

The feature allows you to make customer-specific adjustments to the displays on optiPoint 400 standard 4.0 CorNet-IP-TS, optiClient 130, optiset E, and optiPoint 500 telephone when the telephones are in the idle state.

You can change only the right portion (maximum of 15 characters) of the second display line, which displays “HiPath” as a default. For example, you can enter a company identification or hotel name here. The text lines up with the left part of the date if the length of the text allows it.

```
16:53        Th 07 FEB 02
123456    HiPath    >
```

Figure 8-8

```
16:53        Th 07 FEB 02
123456  Sea View Hotel >
```

Figure 8-9 Default Display in Idle State

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V3.0 or later	V3.0 or later	V3.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Display	The display appears only when the telephone is in the idle state.

8.17 IP Mobility

Definition

- Teleworking
  - Users use the same login ID and password at the teleworking station as at their desk in the office.
  - If the user logs on from home, the IP telephone in the office receives a "non-mobile number", so that all its functions can be used by other users.
  - Only optiClients are approved for use from teleworking stations (PCPBX-ISDN/DSL).
  - Emergency concept: If the system recognizes that an IP Workpoint has failed, a caller can be automatically forwarded to a CFSS Target (Call Forwarding Station Out of Service) configured in the system (e.g. fixed network telephone or mobile phone).
- Desk Sharing
  - The Desk Sharing option means that the user no longer has a fixed office telephone.
  - This feature enables several users to share the same desk. Users get their personal telephone settings after they log in. Neutral status is restored after logoff.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	IP Workpoint Clients (optiClient 130)			
Software requirements	V5.0 or later	V5.0 or later	V5.0 or later	V5.0 or later

8.18 IP Mobility Extension (Emergency)

Definition

Within an IP network, a mobile station can be logged on at home or at any other remote network node. In the case of an emergency call from a HFA-IP telephone that is registered at a remote network node, the emergency destination of the remote network node cannot be called. Instead, the emergency destination of the HiPath 3000 node where the telephone is physically installed is called.

The emergency number that is valid for the IP telephone must be a destination within the HiPath network. The emergency destination can either be connected as a standard telephone with the HiPath 3000 network node, or as a virtual device in which call forwarding to an emergency destination (e.g. to the CO) is activated.

A direct call to an emergency destination in the public network is not possible because Deutsche Telekom, for example, does not permit this type of access.

An emergency prefix must be stored in the HFA-IP telephone. With this number, the emergency destination can be reached from anywhere within the network. Emergency numbers 112 or 110 are dialed by the subscriber and added to the prefix.

During the logon procedure, the stored destination emergency numbers are transferred from the IP telephone to the system. If configured, the location identification number (LIN) must also be sent to the system once the telephone has been registered. Just like the LIN, the emergency number is also part of the non-mobile station profile.
(see also Section 4.3.19)

This function is already supported by the telephones and optiClient terminals.

An emergency number is flagged within the HiPath 3000/5000 LCR dialing plan. When a subscriber dials the emergency number, the algorithm checks whether or not an emergency number has been configured on the telephone. This number can then be added to the digits dialed by the subscriber. Otherwise, the digits dialed by the subscriber are evaluated as normal.

Handling of the LIN has not changed since Version 5.0.

This algorithm allows for more than one emergency number (e.g. 112 and 110). Consequently, only the prefix for the emergency number is stored (e.g. 49 89 722).

It is important that the emergency numbers are configured both in the home system and in the destination system. The fact that different countries have different emergency numbers (e.g. 911 for the USA and 112 for Germany) means that the emergency number for the relevant country must also be configured in the system of the destination country.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	IP Workpoint Clients (optiClient 130)			
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

8.19 Live Call Record (Voice Recording; Recording Calls)

For information on implementing features, see Manager E Voice Recording

Definition

This feature is used to record data from an active voice connection between two telephones, in other words, to record calls. A separate device is required for recording.

HiPath Xpressions Compact can be used as a recording device, for example, to save the data on the recording party's mailbox. A new voice prompt is used for the Live Call Record feature ("The next call will be recorded"). Alternatively, an analog answer machine can be used; in this case there is no voice prompt and the operating instructions for the device in question must be observed.

Recording can be started/stopped by pressing a function key or entering a code (analog telephones). Depending on the configuration, recording can also be stopped by the recording device. The maximum recording time for calls is between 1 and 60 minutes.

The recording equipment can be used by all supported telephones within a CorNet-NQ network (CorNet-IP). Connections with CorNet-N and QSIG (ECMA, ISO) are not supported. The recording tone can be deactivated during recording.

The following telephones are supported: optiPoint (including devices without display), optiClient, optiClient attendant. Standard H.323 phones, SIP phones, EDSS1 stations are not supported.

Activated voice recording is indicated by a LED or a recording tone during the call. Authorization to use voice recording can be individually set for each station (Manager E)

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Separate recording device, for example, Xpressions Compact			
Software requirements	V5.0 or later	V5.0 or later	V5.0 or later	V5.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Consultation hold, toggle/connect, transfer, conference	Initiating one of these features when recording a call automatically interrupts voice recording.
Call hold	Ongoing recording is interrupted by activating “Call Hold”. Recording cannot be activated when a station is on hold.
Override	Voice recording is not possible. You cannot override a call that is being recorded. Similarly, you cannot activate recording after overriding a call.
Silent monitoring	Voice recording is not possible. You cannot monitor a call that is being recorded. Similarly, you cannot initiate recording after activating "Silent monitoring".

You can only record two-party calls, not conferences or calls involving a held party.

Additional remarks:

- The recording device can be addressed in a random node in a CorNet NQ network.
- Only a limited number of stations in a node can be allocated voice recording authorization (currently: 50).
- CSTA resources (monitoring points) are allocated for each authorized station.
- Conference resources are allocated during recording.
- The default service code for activating call recording is *493.

8.20 SIP Telephones

Definition

The SIP protocol (Session Initiation Protocol) is an ASCII-based signaling protocol used to configure sessions in an IP network.

The following telephones are supported:
- optiPoint 410 S
- optiPoint 420 S
- optiPoint 600 S
- optiClient 130 S
- OptiPocket S

The following features are available:
- Call Hold
- Consultation Hold
- Toggle
- Call Forwarding
- Call Waiting
- Call Rejection
- Call Forwarding
- Screened and Unscreened Transfer
- Do Not Disturb
- Local Three-Party Conference
- Mute
- Music on Hold
- Missed Calls List
- Number Redial
- Speed Dialing (10 entries)
- Name Dialing
- Hotline
- Display of Waiting Calls

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Supported telephones: optiPoint 410 S/optiPoint 420 S optiPoint 600 S, optiClient 130 S			
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

8.21 Prerequisites for ProCenter Applications

Definition

Using a multi-pilot station number, it is possible to access the same UCD group with different station numbers. This function is implemented by configuring a virtual station within call management.

The multi-pilot station number is treated in the same way as call forwarding. The information on the multi-pilot station number is delivered by the last call forwarding device and forwarded to a queue in the appropriate UCD group. There are no events on the telephone that represent the multi-pilot station number.

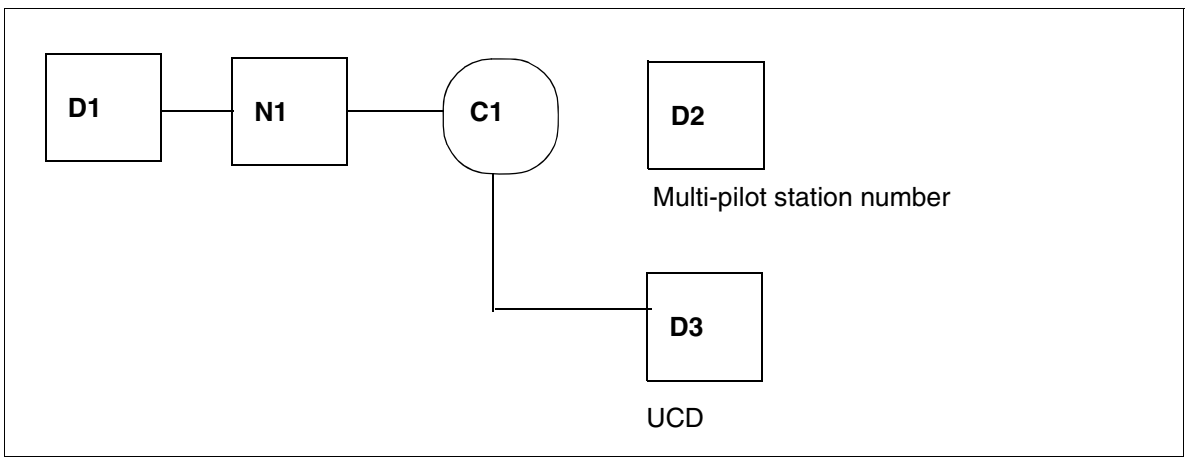
Incoming Call to a UCD without Available Agents

The following scenario describes an incoming call to a multi-pilot station number (D2). The call is forwarded by call management to the appropriate UCD group (D3). Since a telephone (UCD agent) is not available, the call is held in the call distribution queue until an agent becomes free.

The calling telephone (D1) is outside the CSTA subdomain, which means that events are not displayed for this telephone. In this scenario, telephone N1 represents the network interface device (CO) belonging to the calling telephone.

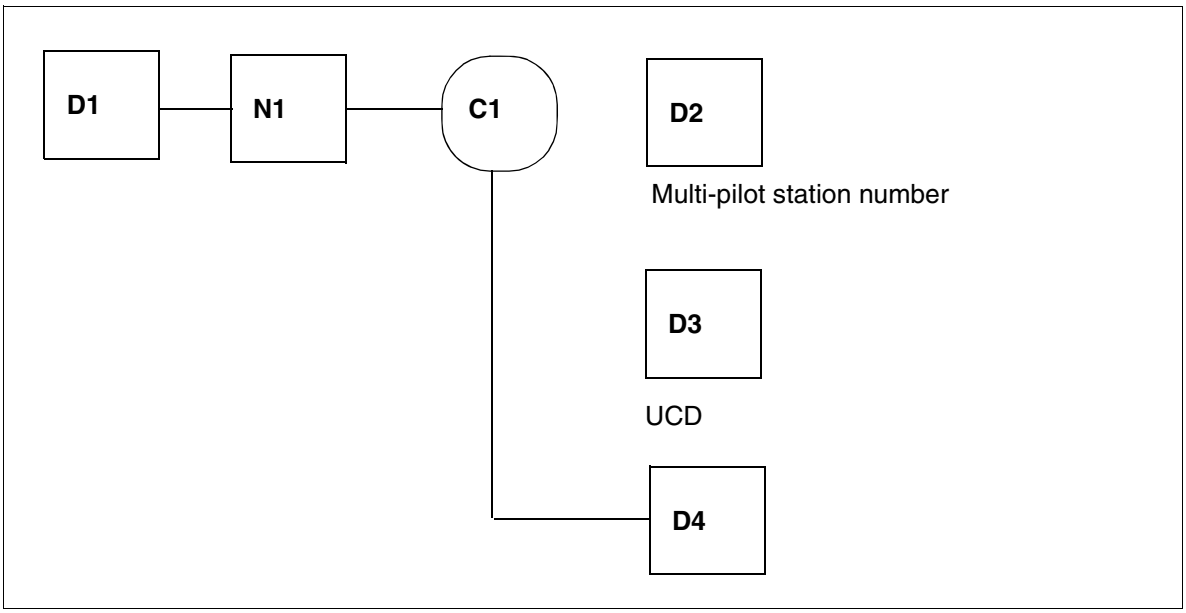
Agent Becomes Available

In this scenario, a UCD agent (D4) becomes available, and the call that had previously been held in the UCD group queue (represented by the multi-pilot station number D2) is put through to this agent.



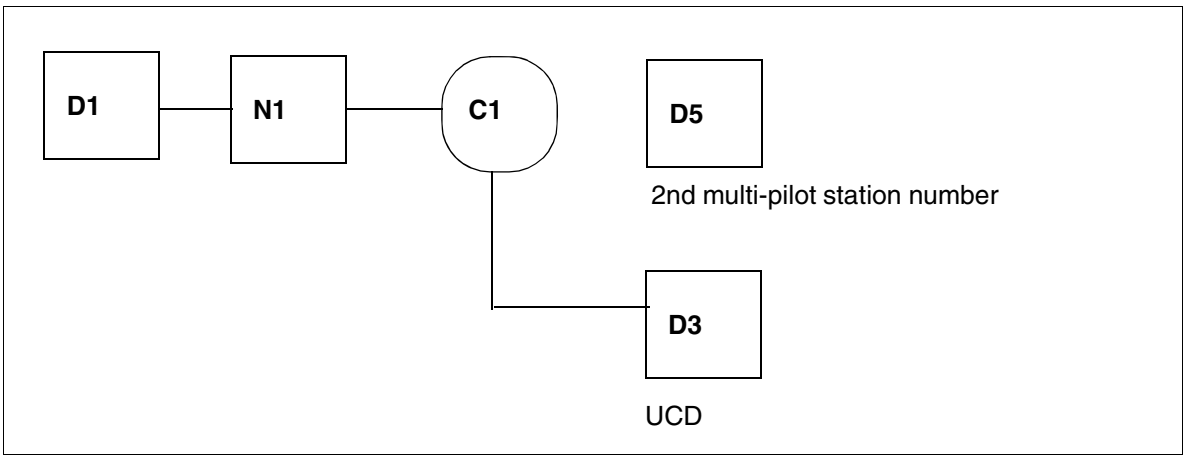
Call is Forwarded to Another Multi-Pilot Station Number

In this example, a call that had previously been held in the queue for the UCD group D3 (represented by the first multi-pilot station number D2), is forwarded to a second multi-pilot station number (D5); this in turn is connected to the same UCD group (D3).



Call is Forwarded by an Agent to Another Multi-Pilot Station Number

In this example, a call that had previously been distributed to the UCD group D3 (represented by the first multi-pilot station number D2), is forwarded by agent D4 to a second multi-pilot station number (D5); this in turn is connected to the same UCD group (D3).



Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	ProCenter application			
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

8.22 Signaling Encryption/Payload Encryption

Definition

In order to guarantee maximum privacy, the signaling stream and the data stream are encrypted. Software encryption methods that meet international standards are used.

Signaling Encryption involves the 128-bit encryption of the required signaling data stream using the AES CM standard.

Encryption of the data stream is referred to as **Payload Encryption**. The SRTP/SRTCP standard is used for encryption. As described in this standard, symmetrical 128-bit encryption of the data stream with the AES CM algorithm is used.

Using a pseudo-random function, the DLS (Deployment and License Service) generates the PSS (PreSharedSecret) with a key length of 128 bits. The PSS is distributed by the DLS via HTTPS (AES CM with 128 bits) to the entities.

The secrets required for signaling encryption and payload encryption are derived by the entities from the distributed PSS. The **SHA-1** standard is used for this purpose.

Mixed Networks: HiPath 3000/5000 V6.0 and HiPath 4000 V3.0

The basic requirement for achieving end-to-end security encryption is HiPath 3000/500 V6.0 and later and HiPath 4000 V3.0 and later. The system upgrade is software-based. The hardware can continue to be used depending on the version. A ComScendo Security License is offered for security. The licenses refer to IP subscribers and B channels for IP networking.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	optiPoint 410 S, optiPoint 420 S, optiPoint WL2 S, optiClient 130 s, optiPocket S			
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

This feature is not supported by IP phones with SIP software.

9 Networking

Implementing features, see also Manager E Networking

Definition

In this case, networking means

- the connection of HiPath 3000 systems with one another and
- the connection of HiPath 3000 systems with other systems such as HiPath 4000.

A HiPath 3000 system forms a **zone** (node) to which the connected workpoint clients and a gatekeeper (HiPath HG1500) belong. The zone may also include a gateway and a HiPath 5000 server.

Zones networked to one another form a **domain** which is defined by the common, cross-zone administration platform, the HiPath 5000 server.

HiPath 5000 is used as the central administration unit in a HiPath 3000 IP network. HiPath 5000 is also the platform for the central provision of applications and facilitates their use by all IP-networked stations.

The HiPath ComScendo service also allows the use of an integrated gatekeeper and HiPath ComScendo features for IP workpoint clients.

Networking possibilities

The following table lists the possibilities that V5.0 of the HiPath 3000/HiPath 5000 offers for networking communication servers, zones, and domains.

Protocol	Remarks	Example uses
TDM-based		
CorNet-N	Siemens AG signaling protocol for digital communication among Siemens communications systems. Note: Systems should only be networked via CorNet-N if these are V4.0 or earlier.	• Networking HiPath 3000 zones • Networking with HiPath 4000
CorNet-NQ	Siemens AG signaling protocol for digital communication among Siemens communications systems.	• Networking HiPath 3000 zones • Networking with HiPath 4000
QSig	Cross-manufacturer signaling protocol in accordance with ECMA and ISO	• Networking with HiPath 4000 • Networking with systems from other manufacturers

Protocol	Remarks	Example uses
E&M	Signaling protocol for analog tie traffic	• Networking with HiPath 4000 • Networking with systems from other manufacturers
IP-based		
CorNet-NQ	CorNet-NQ protocol, tunneled in H.323 via Annex M1	IP backbone networking ofHiPath 3000/HiPath 5000 zones and domains.

Please refer to the Service Manual for examples of the maximum line lengths in CorNet-NQ direct networking.

9.1 Supported features, depending on networking protocol

Networking Features HiPath 3000/5000 V6.0

--- Not relevant

Y Implemented

N Not implemented

In mixed networks consisting of HiPath 3000/5000 V5.0 and HiPath 3000/5000 V6.0 systems, only the functionality of version 5.0 is supported.
An existing HiPath 5000 RSM must be upgraded to V6.0.

Feature	**Abbreviation**	**HiPath 3000/5000**				
		ECMA-QSIG	**ISO-QSIG**	**CorNet N (TDM-Network)**	**CorNet NQ (TDM-Network)**	**CorNet IP (CorNet NQ in IP Network)**
Basic Call (Q.931)	**BC**	Y	Y	Y	Y	Y
Segmentation		Y	Y	---	Y	---
Generic Procedures						
Generic Functional Procedures (ROSE ADPUs)	**GF**	Y	Y	---	Y	Y
Requirements of GF for a Transit PBX		Y	Y	---	Y	Y
Generic Procedures for the control of supplementary services for unsuccessful calls		Y	Y	Y	Y	Y
Transport of Manufacturer Specific Information		Y	Y	---	Y	Y
Classmarks		---	---	Y	Y	Y
Call Completion	**CC**					
Call Completion to busy subscriber	**CCBS**	Y	Y	Y	Y	Y

Tabelle 9-1 Networking Features HiPath 3000/5000 V5.0

Feature	Abbreviation	HiPath 3000/5000				
		ECMA-QSIG	**ISO-QSIG**	**CorNet N (TDM-Network)**	**CorNet NQ (TDM-Network)**	**CorNet IP (CorNet NQ in IP Network)**
Call Completion on no reply	**CCNR**	Y	Y	Y	Y	Y
Busy Calls						
Call Intrusion	**CI**	Y	Y	N	Y	Y
Call Offering	**CO**	Y	Y	N	Y	Y
Call Waiting	**CW**	Y	Y	N	Y	Y
Number Identification						
Calling Line Identification Presentation	**CLIP**	Y	Y	Y	Y	Y
Calling Line Identification Restriction	**CLIR**	Y	Y	Y	Y	Y
Connected Line Identification Presentation	**COLP**	Y	Y	Y	Y	Y
Connected Line Identification Restriction	**COLR**	Y	Y	Y	Y	Y
Name Identification						
Calling/Connected Name Identification Presentation	**CNIP**	Y	Y	Y	Y	Y
Calling/Connected Name Identification Restriction	**CNIR**	Y	Y	Y	Y	Y
Do Not Disturb (Override) Do Not Disturb	**DND/ DNDO**	N	N	N	N	N
Call Diversion						
Call Forwarding Unconditional	**CFU**	Y	Y	Y	Y	Y
Call Forwarding Busy	**CFB**	Y	Y	Y	Y	Y
Call Forwarding No Reply	**CFNR**	Y	Y	Y	Y	Y
Call Deflection	**CD**	N	N	N	N	N

Tabelle 9-1 Networking Features HiPath 3000/5000 V5.0

Feature	Abbrevi-ation	HiPath 3000/5000				
		ECMA-QSIG	ISO-QSIG	CorNet N (TDM-Network)	CorNet NQ (TDM-Network)	CorNet IP (CorNet NQ in IP Network)
Charging Features						
Advice of Charge at Call Setup	**AOC-S**	N	N	N	N	N
Advice of Charge during Call	**AOC-D**	Y	Y	Y	Y	Y
Advice of Charge at the end of the call	**AOC-E**	Y	Y	Y	Y	Y
Additional Network Features						
Path Replacement (Path optimization)	**PR**	Y	Y	Y	Y	Y
Rerouting		Y	Y	Y	Y	N
Message Waiting Indication	**MWI**	Y	Y	Y	Y	Y
Malicious Call Identification MCID	**MCID**	---	---	---	N	N
User-to-User Signalling	**UUS**	---	---	Y	Y	Y
Hold / Enquiry / Alternating Call Hold / Toggle/Connect	**CH**	Y	Y	Y	Y	Y
Call Transfer	**CT**	Y	Y	Y	Y	Y
Conference	**CONF**	Y	Y	Y	Y	Y
Recall (Retrieval of Transfered Calls)	**RE**	Y	Y	N	Y	Y
Single-Step Call Transfer (Blind Transfer)	**SSCT**	Y	Y	N	Y	Y
Emergency Call	**ECS**	N	N	Y	Y	Y
Direct Media Connection	**DMC**	N	N	N	N	Y
Attendant						
Interception	**CINT**	Y	Y	Y	Y	Y
Private Numbering Plan	**PNP**	N	N	---	N	N
Server/CSTA Features						

Tabelle 9-1 Networking Features HiPath 3000/5000 V5.0

Networking

Supported features, depending on networking protocol

Feature	Abbreviation	HiPath 3000/5000				
		ECMA-QSIG	ISO-QSIG	CorNet N (TDM-Network)	CorNet NQ (TDM-Network)	CorNet IP (CorNet NQ in IP Network)
Call Identification and Linkage global call ID	**CIDL**	Y	Y	N	Y	Y
Plus Features						
Routing of Charge Data	**CHT**	Y	Y	N	Y	Y
Routing of Busy monitor Data	**EST**	Y	Y	N	N	Y
Change Class of Service	**RPC**	Y	Y	N	Y	Y
Reset telephone lock	**RPC**	Y	Y	N	Y	Y
Call back to mailbox (with Message Waiting Indication)		N	N	Y	Y	Y
CSTA Command Information		---	---	N	Y	Y

Tabelle 9-1 Networking Features HiPath 3000/5000 V5.0

Networking Features HiPath 3000/5000 V6.0 / HiPath 4000 V2.0

Boundary conditions:

Closed and Open Numbering
HiPath 3000: CorNet NQ via TDM and IP
HiPath 4000: CorNet NQ via TDM and IP

Feature	Abbreviation	Interworking HiPath 4000/ 3000 (ConNet NQ)	Interworking DSS1-CO connected to HiPath 3000 (CorNet Q <->DSS1)	Interworking CorNet N (HiPath 3000 V4.0 connected to HPath 3000 (CorNet NQ <-> Cornet N	Interworking QSIG connected to HPath 3000 (CorNet-NQ <-> ISO-QSIG)
Basic Call	**BC**	Y	Y	Y	Y
Segmentation		Y	---	---	---
Generic Procedures					
Generic Functional Procedures (ROSE ADPUs)	**GF**	Y	---	---	---
Requirements of GF for a Transit PBX		Y	---	---	---
Generic Procedures for the control of supplementary services for unsuccessful calls		Y	---	---	---
Transport of Manufacturer Specific Information		Y	---	---	---
Classmarks		Y	Y	Y	Y
Call Completion	**CC**				
Call Completion to busy subscriber	**CCBS**	Y	Y	N	Y
Call Completion on no reply	**CCNR**	Y	Y	N	Y
Busy Calls					
Call Intrusion	**CI**	N	N	N	Y
Call Offering	**CO**	Y	N	N	Y

Tabelle 9-2 Networking Features HiPath 3000/5000 V5.0 / HiPath 4000 V2.0

Feature	Abbreviation	Interworking HiPath 4000/ 3000 (ConNet NQ)	Interworking DSS1-CO connected to HiPath 3000 (CorNet Q <->DSS1)	Interworking CorNet N (HiPath 3000 V4.0 connected to HPath 3000 (CorNet NQ <-> Cornet N	Interworking QSIG connected to HPath 3000 (CorNet-NQ <-> ISO-QSIG)
Call Waiting	**CW**	Y	Y	Y	Y
Number Identification					
Calling Line Identification Presentation	**CLIP**	Y	Y	Y	Y
Calling Line Identification Restriction	**CLIR**	Y	Y	Y	Y
Connected Line Identification Presentation	**COLP**	Y	Y	Y	Y
Connected Line Identification Restriction	**COLR**	Y	Y	Y	Y
Name Identification					
Calling/Connected Name Identification Presentation	**CNIP**	Y	N	Y	Y
Calling/Connected Name Identification Restriction	**CNIR**	Y	N	Y	Y
Do Not Disturb (Override) Do Not Disturb	**DND/ DNDO**	N	N	N	N
Call Diversion					
Call Forwarding Unconditional	**CFU**	Y	Y	Y	Y
Call Forwarding Busy	**CFB**	Y	Y	Y	Y
Call Forwarding No Reply	**CFNR**	Y	Y	Y	Y
Call Deflection	**CD**	N	N	N	N
Charging Features					
Advice of Charge at Call Setup	**AOC-S**	N	N	N	N
Advice of Charge during Call	**AOC-D**	Y	Y	Y	Y
Advice of Charge at the end of the call	**AOC-E**	Y	Y	Y	Y

Tabelle 9-2 Networking Features HiPath 3000/5000 V5.0 / HiPath 4000 V2.0

Feature	Abbrevi-ation	Interworking HiPath 4000/ 3000 (ConNet NQ)	Interworking DSS1-CO connected to HiPath 3000 (CorNet Q <->DSS1)	Interworking CorNet N (HiPath 3000 V4.0 connect-ed to HPath 3000 (CorNet NQ <-> Cornet N	Interworking QSIG con-nected to HPath 3000 (CorNet-NQ <-> ISO-QSIG)
Additional Network Features					
Path Replacement (Path optimization)	**PR**	Y	N	Y	Y
Rerouting		Y	Y	Y	Y
Message Waiting Indication	**MWI**	Y	Y	N	Y
Malicious Call Identification MCID	**MCID**	N	N	N	N
User-to-User Signalling	**UUS**	Y	N	Y	N
Hold / Enquiry / Alternating Call Hold / Toggle/Connect	**CH**	Y	Y	Y	Y
Call Transfer	**CT**	Y	N	Y	Y
Conference	**CONF**	Y	Y	Y	Y
Recall (Retrieval of Transfered Calls)	**RE**	N	N	N	Y
Single-Step Call Transfer (Blind Transfer)	**SSCT**	Y	N	N	N
Emergency Call	**ECS**	Y	Y	Y	N
Direct Media Connection	**DMC**	Y	N	N	N
Attendant					
Interception	**CINT**	N	N	N	Y
Private Numbering Plan	**PNP**	N	N	N	N
Server/CSTA Features					
Call Identification and Linkage global call ID	**CIDL**	N	N	N	Y
Plus Features					

Tabelle 9-2 Networking Features HiPath 3000/5000 V5.0 / HiPath 4000 V2.0

Networking

Supported features, depending on networking protocol

Feature	Abbreviation	Interworking HiPath 4000/ 3000 (ConNet NQ)	Interworking DSS1-CO connected to HiPath 3000 (CorNet Q <->DSS1)	Interworking CorNet N (HiPath 3000 V4.0 connected to HPath 3000 (CorNet NQ <-> Cornet N	Interworking QSIG connected to HPath 3000 (CorNet-NQ <-> ISO-QSIG)
Routing of Charge Data	**CHT**	N	N	N	Y
Routing of Busy monitor Data	**EST**	N	N	N	N
Change Class of Service	**RPC**	N	N	N	Y
Reset telephone lock	**RPC**	N	N	N	Y
Call back to mailbox (with Message Waiting Indication)		Y	N	Y	N
CSTA Command Information		N	N	N	N

Tabelle 9-2 Networking Features HiPath 3000/5000 V5.0 / HiPath 4000 V2.0

Networking Features HiPath 2000 V1.0/ HiPath 3000/5000 V6.0 and HiPath 8000

The systems are networked via SIP (Session Initiation Protocol). The SIP protocol is an ASCII-based signaling protocol used to configure sessions in an IP network. Only the following standard SIP features are available:

- Basic procedures for supporting SIP
- Station number display (caller, connected stations)

The systems can also be networked via CorNet N or NQ (TDM or IP).

9.2 Satellite CS Capability

Implementing features, see also Manager E Satellite CS Capability

Definition

You can connect the HiPath 3000/HiPath 5000 to an existing communications system as a satellite CS and use the functions of the communications system.

The inter-PBX traffic can be processed via direct connections between the systems as well as via public trunks and dedicated lines.

In addition, with HiPath 3750 and HiPath 3700, users can process tie trunk traffic via E&M trunks.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk board or TMEW2 board (E&M)	Digital trunk board or TIEL board (E&M)	Digital trunk board	Digital trunk board
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Closed numbering	With closed numbering, trunk group codes must be deleted for CorNet trunk groups, although trunk access codes remain.
LCR	In a CS with CO access, LCR must be active to handle transit calls.
CorNet trunk groups	On CorNet trunk groups that can seize a trunk in the remote CS, the second discriminating digit in the trunk group must be entered from the remote CS.
Analog trunks	On analog external trunks, a flash (not ground) signals the main CS.

9.3 SIP Networking

Definition

A new feature in Version 6.0 is system networking via SIP (Session Initiation Protocol). This is now supported by HiPath 2000, HiPath 3000/5000 and HiPath 4000.

SIP networking enables the following for the systems:

- a PSTN gateway for HiPath 8000 and HiPath 5000 SIP users
- a PSTN gateway for directly connected SIP terminals
- a Survivable Media Gateway for HiPath 8000 SIP stations
- standalone TDM gateways for OpenScape
- standalone TDM gateways for other SIP systems (e.g. Vovida and/or Cisco)

In addition, SIP enables the following for the HiPath 2000, 3000/5000 systems:

- support of SIP station interfaces (basic call and basic features)
- SIP connection to VoIP providers
- enhanced security comprising signaling and payload encryption, also for SIP calls
- enhanced security comprising signaling and payload encryption, also for SIP calls

The provision of a TDM-SIP gateway means that the HiPath 3000/4000 systems can also operate as SIP <-> TDM gateways. This in turn means that, in the case of a call between HiPath 3000/4000 TDM terminals and the PSTN, the connected SIP terminals can be routed via the HiPath 3000/4000.

Support of SIP networking has two aspects:

- firstly, the support of SIP-Q for connection to systems and COs with SIP-Q capability
- secondly, support of SIP networking to VOIP COs and other systems with SIP capability that are based on the original SIP protocol (e.g. OpenScape, which is based on the Microsoft Live Communication Server and Vovida and/or Cisco).

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

9.4 Cross Networking (E&M)

Definition

The TIEL (HiPath 3750, HiPath 3700) and TMEW2 (HiPath 3800) boards support tie traffic to other private communication systems. They contain four two-way analog tie trunks with E&M signaling. Each tie trunk has eight connections: two incoming speech paths, two outgoing speech paths, two incoming signaling paths, and two outgoing signaling paths.

The speech paths can switch between four-wire and two-wire modes. To ensure high-quality transmission, a four-wire connection should be used for analog networks. The advantage of providing separate speech paths for incoming and outgoing calls is that it helps maintain call stability (echo). Repeaters in the transmission equipment can also compensate for attenuation losses.

The E&M signaling paths exchange signals that control connection setup and cleardown. Depending on the requirements of the remote system or the transmission equipment, you can use different types of interfaces that have a different number of wires or different potentials.

The HiPath 3000 LCR features can be implemented to support a coordinated dialing plan in simple network designs. The HiPath 3000 support off-premise call forwarding over these types of tie-trunk circuits and can be used to route inbound call traffic to remote answering destinations.

While this simple network design does not afford feature transparency, economical call routes using analog E&M tie lines or standard T1/D4 tie lines can be used.

Before placing a tie trunk in service, you must determine which interface type the two participating systems should share.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	–	–
Hardware requirements	TMEW2	TIEL	–	–
Software requirements	V5.0 or later	V1.0 or later	–	–

9.5 Numbering

Implementing features, see also Manager E Numbering

Definition

In private networks, users can assign station numbers, trunk access codes, and feature codes according to a customer-defined numbering plan.

HiPath 3000/HiPath 5000 support both closed and open numbering.

- Closed numbering
  assumes the uniqueness of all station numbers in the network. Any station in the network can call any other station by dialing its number.
- Open numbering
  means that a station is identified by a node number and its station number. This could mean that stations in different nodes have the same station number.

In a HiPath 3000/HiPath 5000 network you must select the same type of numbering for all nodes.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Numbering	Users can change internal numbering only using HiPath 3000 Manager E or Manager T.

9.6 Toll Restriction in CorNet-N

Definition

HiPath 3000 supports PABX traffic via CorNet-N. The system can be operated as an end node (system without CO access, only CorNet trunk group), as a transit node (system with at least 2 CorNet trunk groups, no central office), and as a gateway (system with CO and CorNet trunk group).

In addition to the Basic Call (outgoing and incoming call setup), the Toll Restriction feature is supported.

If HiPath 3000 is operated in networked environments, the toll restriction assigned to the subscriber is verified and transferred, or received in the case of incoming calls, when a CorNet line is seized (toll restriction transfer). The class of service is transferred to a gateway system in standardized form every time an outgoing line is seized and every time an extension answers.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Restrictions	As main or satellite CS			only as satellite CS

Dependencies/Restrictions

Subject	Dependency/Restriction
Classes of service	The following 15 classes of service exist for class-of-service transfer: • Internal access only (0) • Outward restricted trunk access (1) • Local public network (2-13, including 6 allowed and 6 denied lists) • Unrestricted trunk access (14)
Classes of service for two networked systems	When there is an external seizure of a station from the satellite CS (with COS 2-13) over the main CS, the main CS's first denied list always does the seizing. For this reason, keep the first denied line of the main CS free for the assessment of the stations from the satellite CS. The system keeps COS 0, 1, and 14 of the satellite CS.

9.7 Call Detail Recording with Networking

Definition

In a networked environment, each communication server records call details locally. Networking does not affect call detail recording in HiPath 3000/HiPath 5000. Call details continue to be recorded for outgoing calls provided they are transmitted by the master communication server. In environments with slave communication servers without a separate central office, the master communication server centrally records call details that originate within the master communication server (call detail recording central [CDRC]).

In addition, CDRC logs call detail information received for incoming calls (for example, transfer of a toll call from a networked system).

Each communication server can only record calls that are routed through its own trunks or transit calls. A centralized CDR device can be used to collect CDR data from each individual communication servers' RS-232 interface.

CDR routing works from Version 4.0. With the Cornet protocol enhancement, call charge records can be forwarded from one system to another.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Buffer box	If a communication server in a network has local trunk accesses, a local buffer box can be used for the call charges.
Call via the trunk gateway of the remote CS	If a station in a CS conducts an outgoing call via the CO access of the remote CS, the call details that apply to the CS in which the trunk is seized are output as call type 6 (direct outward dialing).

9.8 Incoming Call

Definition

CorNet handle incoming calls the same as internal calls. Users can configure digit analysis in the networked communication server so that they can reach all HiPath 3000/HiPath 5000 Workpoint clients by dialing the prefix.

The Workpoint client station number corresponds to the external numbering plan and is analyzed accordingly. When the connection is made, the following information is passed to the remote CS placing the call:

- Toll restriction
- Workpoint client station number
- Station name

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.9 Consultation Hold/Transfer/Pickup

Definition

Consultation hold between a HiPath 3000/HiPath 5000 station and a station in a networked communication server is initially set up via a second B channel. If possible, the connection itself is made via path replacement (rerouting), which is activated after Connect. If path replacement is not possible, the connection remains on the second B channel.

When an external call is **transferred** to a station connected via CorNet, the station number, name, and class of service for the A and C stations are transmitted.

Users can **pick up** from the networked communication server if the call is identified as a consultation call. If the consulted party picks up the call, the request from the master communication server causes the call to be switched in transit, and the system disconnects the consulting party. If the consulted party disconnects the consultation call, the consultation is automatically reconnected to the last call on hold.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Unscreened transfer	Unscreened transfer is possible on a free or busy station in a networked system.
Call pickup groups with fractional T1s	If you are using a portion of B channels on a T1 for data applications (for example, with a data server), you must bar the data B channels from being used for call pickup groups.

9.10 Automatic Recall

Definition

The system initiates a recall if the network cannot perform an unscreened transfer. The recall applies locally and not network-wide.

In homogeneous HiPath 3000/HiPath 5000 networks, an unanswered call from one node to another recalls the initiating station in the originating node.

In non-homogeneous networks, an unanswered call to a non-HiPath 3000/HiPath 5000 Communication Server system recalls at the transferring system's intercept position or originator, depending on the system configuration.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.11 Call Waiting

Definition

Networked systems handle call waiting the same way as internal call waiting.

Corresponding D channel messages are generated for waiting calls.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.12 Distinctive Ringing in the Network

Definition

The calls are evaluated in the network and signaled accordingly.

CorNet calls are handled and signaled the same as internal calls.

Distinctive internal and external ring types are provided over CorNet.

Network station-to-station calls provide internal ringing patterns, whereas external trunk calls routed over CorNet provide external ringing patterns.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.13 Callback on Free/Busy

Definition

Users can activate the callback feature across systems. The user interface is the same as for internal callback. Instead of the internal Workpoint client, the station number of the networked station is stored and displayed.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.14 Station Number and Name Display

Definition

In addition to the call number, HiPath 3000/HiPath 5000 send the name of the caller via CorNet connections. In the same way, if a name is available for incoming calls, the system displays the name instead of the call number.

This feature supports both uppercase and lowercase letters. In addition, users can configure whether the telephone display shows the caller's name or station number.

The HiPath 3000/HiPath 5000 sends both the calling station number and calling station name (if applicable) via the ISDN D channel.

If external and internal calls are routed via CorNet-N to another node, it is necessary to split the B channels of a T1 span for internal and external traffic. This can lead to the situation that for certain calls not all 23 B channels are available.

In an incoming call from another node's ISDN trunk, the calling party's Caller ID is received on the HiPath 3000/HiPath 5000 optiset E or optiPoint 500.

An ISDN trunk call transferred or redirected from the HiPath 3000/HiPath 5000 (either by a station or by a voice processing device) passes the calling party's Caller ID to the next node.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Station number suppression	Each user can use the station number suppression function to activate or deactivate station number and name display.

9.15 Call Forwarding With Rerouting

Definition

Calls can be rerouted for call forwarding via CorNet to optimize B channel utilization.

Subscriber A in system 1 calls subscriber B in system 2. Subscriber B has set call forwarding to subscriber C in system 1. The two B channels between CS 1 and CS 2 are released. This means that the connection is set up directly within CS 1. For this to be possible, both CSs must activate rerouting.

HiPath 3000/HiPath 5000 users can forward their incoming internal and/or external calls to users within their own system, to a node within the private network, or off-site (if the feature is allowed in the system administration). Call forwarding-no answer is possible using Call Management pseudo ports in the HiPath 3000/HiPath 5000 system.

Pseudo numbers are used for identification and steering purposes. A pseudo number is a call number/DID number assigned to a port not associated to a physical device. Pseudo numbers can be assigned in the "Set up Station" screen (HiPath 3000 Manager E) and can be configured with a name and with Call Management control information. Pseudo numbers cannot be programmed as Repertory Dial (Repdial) keys on the optiset E or optiPoint telephones. Pseudo numbers can be forwarded using the Associated Services feature code (*83) from a station with the Associated Services authorization flag activated.

Rerouting can be defined in the database as follows:

- Rerouting is deactivated
- Reroute only if the route is known
- Rerouting is always activated

This option is only available for CorNet networking, and must be activated in the same way in both networked systems.

Rerouting cannot be activated for route 16 (IP trunking).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.16 Path Replacement

In general, path replacement is supported in all protocols (CorNet N, CorNet NQ, QSig), provided it is permitted in the CDB.

There is no path optimization on connections with IP telephones.

The following generally applies:

- Path replacement is only initiated after the connection is set up. The Rerouting feature performs replacements in the ringing phase.
- Path replacement is activated from the primary end (this is usually the previously held station).
- If HiPath 3000 acts as the secondary end, it attempts deferred path replacement (see below for prerequisites)

Path replacement is performed in the following situations:

- After transfer scenarios
- Connect after call forwarding or call forwarding no answer (if it can be recognized using the facility information)

Exceptions:

- Connection after group ringing or group call.
- Basic call without features
- If, after a feature (e.g. Transfer) is selected, only TDM devices in the same node are involved in a call, the IP route is also replaced (there is no path replacement for TDM devices in different nodes connected via IP trunking).
- There is no path replacement for conferences.
- Path replacement is interrupted if another feature is activated during a path replacement process.

Cross references:

- The DMC (Direct Media Control) feature uses path replacement messages as a carrier message for additional DMC information.

9.17 Toggle

Definition

The conditions described for Toggle also apply to networked systems.

That is, station users can use the Toggle feature to toggle between callers, including those originated or received on CorNet call routes.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call hold	A station on hold cannot toggle between calls.

9.18 Conference

Definition

The conditions described for Conference also apply to networked systems.

Voice station users on the HiPath 3000/HiPath 5000 can establish internal and external conference calls using local and CorNet call routes as needed. The system limits the number of conferees in a conference to five. A party in another node connected to the conference via CorNet is allowed to add additional parties within its own node using its own conference circuit. Members of a conference within another node will not be updated with the conference display information (number of conferees in the conference) of the HiPath 3000/HiPath 5000 system.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Conference	You can set up a conference between voice stations only.

9.19 Central Attendant Console

Definition

A central attendant console supports the switch and recall functions in the network. A local intercept position can redirect intercepted calls via a networked station (with call forwarding).

Pseudo numbers can also be entered that are forwarded to a remote system for centralized answering applications. The Associated Service feature must be used to call forward the pseudo number to the target location.

The central intercept position can also be configured with CorNet NQ without pseudo stations. It is configured via system parameters - Intercept / Attendant - Central intercept position.

The console display shows the calling party number if available. There is no indication specific display for intercept, same display as for incoming external calls. In Version 4.0 will be also a display for netwide intercept.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Central Busy Signaling optiClient Attendant	Up to 100 stations per networked system (node) can be integrated.
Attendant console in networked systems	The following functions can only be used in the local node or the local zone: • Releasing external trunks • Override • Queuing • Radio paging PSE • CDRA (including printing) • Park • System telephone lock • Transfer undialed trunks

9.20 Network-Wide Busy Signaling

Definition

Presence Manager, a service residing on the Feature server, enables the subscriber communication statuses "no answer", "busy" and "call" to be signaled at the LEDs on the optiset E and optiPoint telephones in a HiPath 3000/HiPath 5000 network. The call can be picked up by pressing the appropriate keys.

The subscriber communication status can only be signaled if the Presence Manager can set a CSTA monitor point for this subscriber. For example, the status of a MULAP station number cannot be signaled because a CSTA monitor point cannot be set for a call number of this type. To generate CSTA messages the TAPI170 service must be started.

The prerequisite for node-wide call pickup is that unique trunk codes have been defined within the network.

The keys are configured by the user. The keys can only be programmed if routing is activated. When keys are programmed on the telephone itself, no distinction is drawn between internal and network-wide routing keys. HiPath 3000 Manager E, on the other hand, requires a distinction between internal, external and network-internal operation when programming the keys.

If Presence Manager is not available, for example due to failure of the Feature server or to the TAPI170 service not being started, the corresponding subscriber can be called by pressing the programmed key. The subscriber communication status is not signaled and call pickup is not possible.

Presence Manager is a service with no user interface and is started via the Feature server. No settings need be made, as all data is automatically obtained from a data interchange (synchronization) between the HiPath 5000 database and the Presence Manager.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V3.0 or later	V3.0 or later	V3.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
MULAPs and Groups	MULAPs and Groups are not supported by Presence Manager. LED signaling is not performed and call pickup is not possible.
S_0 telephones	S_0 telephones are not supported by Presence Manager.

9.21 Network-Wide Busy Signaling on optiClient Attendant

This section contains information on Implementing features. See also Manager E Network-Wide Busy Signaling on OptiPoint Attendant

Definition

All cross-system busy signaling in a HiPath3000/5000 network is routed exclusively to the central attendant console.optiClient Attendant The feature is available in networks with closed or open numbering.

Systems (nodes) in the network can report the operating states of selected stations to the central optiClient Attendant attendant console. The following operating states can be signaled for the telephones:

- Free
- Busy internally
- Busy externally

Ringing state

- Do Not Disturb
- Call forwarding (CF)
- Faulty (displayed as busy internally)

The status "Ringing" can only be displayed in the central node. The attendant can pickup calls via the BLF with this. Networked nodes display "Busy internally" in ringing status to prevent a call pickup.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Central Busy Signaling optiClient Attendant	The central node stations can all be included.

9.22 Sharing a Central Voice Mail Server

Definition

Users in a networked system can program call forwarding to a central voice mail server. HiPath 3000/HiPath 5000 stations are informed of calls received by means of the message waiting indication.

The central voice mail server can be queried in DTMF mode.

In a homogeneous HiPath 3000/HiPath 5000 network, the centralized voice mail system must be located at the HiPath 3750 or HiPath 3700 system. Special attention should be paid during the presales investigation concerning the amount of traffic from all nodes to the voice mail server. The HiPath 3000/HiPath 5000 support a maximum of 8 VMIe analog ports connected from the voice mail server to the HiPath 3750 or HiPath 3700.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.23 DISA Intern (Direct Inward System Access Internal)

This feature is a simplified form for activating and implementing particular features in another HiPath 3000/HiPath 5000 node.

You can use the DISA procedure only within a HiPath AllServe network. The existing feature, which allows you to use features in HiPath 3000/HiPath 5000 via an external connection, does not change.

For activating the feature, each HiPath 3000/HiPath 5000 node has a DISA station number that is unique throughout the HiPath AllServe.

You can activate the following features across nodes via DISA Intern in a HiPath AllServe networking:

- Release door opener via relay option
- Transfer call forwarding
- Actuator on/off
- Night service
- Leave hunt group or group call

External seizures are not possible via DISA.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.24 System Speed Dialing With HiPath 5000 Feature Server

You can continue to use system speed dialing for each node to set up the external connection.

It is not planned to share speed dialing destinations with a system SSD memory (HiPath 3000/ HiPath 5000 server) because each node supplies its own SSD memory.

However the HiPath AllServe server handles the central configuration of all nodes. To do this, it stores an extra copy of the SSD data in a standardized SSD memory area. An update function copies this SSD data to the respective nodes.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.25 QSig

Implementing features, see also Manager E QSig

Definition

CorNet is usually the protocol used for networking HiPath systems with each other. QSig, the cross-vendor signaling protocol, is used for networking HiPath and non-HiPath systems. In homogeneous networks, HiPath 3000/HiPath 5000 supports the following basic features.

In QSig environments, you can operate HiPath 3000/HiPath 5000 as an end node, transit node, or gateway.

You can use the QSig protocols, which are based on the following specifications:

- ECMA V1.0 and ECMA V2.0 (for the MWI feature only)
  with the partial specifications
  – ETS 300172: Basic Call/ECMA 143
  – ETS 300239: Generic Functions/ECMA 165
- ISO partial specifications
  – ISO 11572: Basic Call, ID Identifications (CLIP, CLIR, COLP, COLR)
  – ISO 13868: Name Identification
  – ISO 13869: Call Transfer
  – ISO 13870: Call Completion (Call Completion Busy, Call Completion No Reply)
  – ISO 13873: Call Forward Unconditional
  – ISO 15506: Message Waiting Indication

These networked systems collectively act like a single system, transmitting the following over the S_0- trunk:

- Callback option
- Station number
- Name
- Party category
- Transit counter

Called parties with toll restriction "0" (no direct trunk access) for a QSig trunk cannot answer an incoming QSig call for another station (call pickup, trunk key). However, direct calls and forwarded calls to the B party are possible.

Interworking With Other Protocols

- CorNet-N
  All existing features implemented for both CorNet-N and QSig support interworking in the QSig direction and vice versa. The only exceptions are the callback feature (CCBS/CCNR) and the message waiting indication (MWI) because the message flows between the two protocols and the ones between two nodes are too different.
- ETSI
  The requirements for interworking between CorNet-N and ETSI apply here as well.

Networking using QSig (Subset)

If Hicom 150 E Office/HiPath 3000 communication systems are connected to an existing communication system via digital lines, information can be exchanged between the main system and the PABX in the same way as in Hicom 100 E, not only via CorNet N but also via QSig, the European signaling protocol used by all manufacturers. Hicom 150 E Office/HiPath 3000 supports the system-wide features listed below. The features listed here primarily apply to networking with A6. For Hicom 150 H V1.2/HiPath 3000 V1.2 or later, this also applies to OfficePoint/HiPath 3350/3300, OfficeCom/HiPath 3550/3500 and OfficePro/HiPath 3750/3700. Networking with this communication system requires system-wide features that are currently not defined in QSig Version 1 or CorNet NQ.

These networked systems collectively act like a single communication system. The following features are transferred via the ISDN line:

- Callback option
- Station number
- Name
- Party category
- Transit counter

Station B with toll restriction "0" (no direct trunk access) for a QSig trunk cannot answer an incoming QSig call for another station (call pickup, trunk key). However, direct calls and forwarded calls to station B are possible.

Supported Features

- Numbering plan
  - ISDN Numbering Plan
  - The system does not support a private numbering plan.
- Call detail recording
  - In the local system: same as before.
  - Call charges are not transferred in transit traffic.
- Direct inward dialing (external)
  - In the local system: same as before.

  - Direct inward dialing is not possible in transit traffic.

- Consultation hold
  - In the local system: same as before.
  - In the remote system:
    Consultation calls over a second trunk are possible; that is, the call is switched over two B channels by the local system, and they can be transferred. When a user releases the call, the call last placed on hold becomes active.

- Callback
  - Users can activate completion of calls - no reply (CCNR) or completion of calls to busy subscribers (CCBS) to the remote communications system. They can activate CCNR if the other party does not answer or if a call is waiting. They can activate CCBS in the following situations: The other party is busy with one or multiple calls, engaged in a consultation call or a conference, or has activated do not disturb.
  - Users cannot set a callback to a call forwarding destination, a member of a group call or hunt group, a room monitor, or an entrance telephone.
  - Callback calls are deleted when the CS is reset, a trunk fails, or a port is reprogrammed; AB and BA calls are also deleted.

- Call forwarding
  - To optimize B channel usage a forwarded call is handled in accordance with the specifications for "call forwarding/partial rerouting". If partial rerouting is rejected, forward switching is used.
  - If the Hicom 150 E Office/HiPath 3000 is acting as a gateway, forward switching is performed (even where there are 2 QSIG trunk groups).

- Name display
  - Only UPPERCASE letters are transferred. Users can specify whether a transferred name or the caller's station number should be displayed.

Additional QSIG/QSIG+ Features

The generic term QSIG+ covers all features that are not standard QSIG features.

The following functions based on QSIG features are supported in central agents or consoles that are connected to an A6 communication system (Hicom 150 H V1.2/HiPath 3000 V1.2 or later and OfficePoint/HiPath 3350/3300, OfficeCom/HiPath 3550/3500 and OfficePro/HiPath 3750/3700).

  - Call intercept (CINT)
  - Call intrusion (CI)
  - Recall (RE)

Central Call Detail Recording using QSIG

If central call detail recording is activated via QSIG, unit-oriented CDR must continue to be set in the communication system. Central call detail recording via QSIG does **not** support call charge oriented CDR.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

9.25.1 Basic Features

Numbering plan

- ISDN numbering plan
- The system does not support a private numbering plan.

Call detail recording

Direct inward dialing (external)

- In the local system: same as before.
- There is no transfer of call charges in transit traffic.

Consultation hold

- In the local system: same as before.
- To remote system:
  Consultation calls over a second trunk are possible, that is the calls are switched from the local system over two B channels, and they can be transferred. When a user releases the call, the call last placed on hold becomes active.

Callback

- Users can activate completion of calls - no reply- (CCNR) or completion of calls to busy subscribers (CCBS) to the remote system. They can activate CCNR if the other party does not answer or if a call is waiting. They can activate CCBS in the following situations: The other party is busy with one or multiple calls, engaged in a consultation call or a conference, or has activated do not disturb.
- Users cannot set a callback to a call forwarding destination, a member of a group call or hunt group, a room monitor, or an entrance telephone.
- Callback calls are deleted when the CS is reset, a trunk fails, or a port is reprogrammed; they can also be deleted manually. The same applies to calls from A to B and from B to A.

Call forwarding

- The system supports only the CFU (call forwarding unconditional), QSig version.
- To optimize b channel usage a forwarded call to a telephone of the main PBX is handled in accordance with the specifications for "call forwarding/partial rerouting". If partial rerouting is rejected, forward switching is used.
- If HiPath 3000/HiPath 5000 is a gateway, *forward switching* is implemented.

Name display

Only UPPERCASE letters are transferred. Users can specify whether a transferred name or the caller's station number is displayed.

Name display is supported for all calls which originate in the network. Name information is only displayed for trunk calls via tie trunks in the US.

9.25.2 Central Attendant Position/Attendant Console

This function is available in transit only.

9.25.3 Intercept

For operation in networked environments, users can configure an external station number as the attendant console or intercept position in HiPath 3000/HiPath 5000. If, based on the locally valid intercept criteria, an intercept occurs in a communication server, the call is forwarded to the external station number programmed in the communication server or discarded.

The central attendant console intercepts calls according to the CINT (call interception) QSig specification. The cause of the intercept, which is transferred in encoded format, is an important item of data.

The attendant always intercepts calls via a second B channel, because problems could otherwise occur in a network with different CSs.

9.25.4 Originator of the Intercept

The dialed digits or the station number of the party originating the intercept can be sent to the intercept destination as the originator of the intercept.

HiPath 3000/HiPath 5000 systems indicate only the station number of the station that caused the intercept. In the case of call forwarding and hunt groups, this is the original station dialed. No information is transferred if the caller dials an incorrect or incomplete number.

9.25.5 Override

An authorized network station (such as the central attendant position or a HiPath 3000/HiPath 5000 station with override authorization) can override a call being conducted at a busy station in the network. Users cannot override conference calls in HiPath 3000/HiPath 5000. The feature is implemented according to QSig specification CI (call intrusion).

The HiPath 3000/HiPath 5000 systems handle a busy override according to QSig in a network just like an internal busy override. This means that every user who is authorized to override busy calls is authorized to do so throughout the network. The override operation transforms a two-party call into a three-party call.

9.25.6 Automatic recall

This feature activates a recall to the originating station in the network, for example if a transfer was unsuccessful. The feature is implemented according to QSig specification RE (recall).

9.25.7 Message Waiting Indication (MWI)

This feature allows you to activate and delete the "Mailbox key" (callback signaling).
This function supports sending (service menu or code) from the idle, ringing, busy, and talk states and supports the receiving of messages. You cannot select text messages. Because the protocol does not support the transmission of text information, the receiving end always receives and displays the “Please call back” message.
A central voice mail server in the QSig network can also initiate a message. In this case, the name administered for this voice mail server for callback access is displayed. It is not possible to send a message to voice mail.

In the case of Octopus E 300/800, message waiting indication is supported either for voice mail or for other stations. If the feature is activated for voice mail, it must be deactivated for other stations.

9.25.8 Central Cross-System Busy Signaling

This feature is supported only in the direction of an Octopus E 300/800 system (A6, Release 6.3 or later) from Deutsche Telekom AG. The destination of cross-system busy signaling can only be the central Octopus E 300/800 attendant console (AC).
Systems in the QSig network can report the operating states of selected stations to the central attendant console of a CS (can be main CS or satellite CS). The following operating states can be signaled for the telephones:

- Free
- Busy internally
- Busy externally
- Defective

The numbering plan in this network must be closed and it must be possible to access the CS via the first administered QSig port on the remote system.
Operating states cannot be transmitted via CSs functioning as gateway or transit nodes.

9.25.9 Lock Code-Reset Code (V3.0 SMR-3 and later)

Manufacturer-specific expansions to the QSig protocol (QSig+) allow the individual lock code of a station networked over QSig+ to be reset to the default value “00000”.

Initiate the reset with the code “System telephone lock/Reset code” or by selecting the correct entries in the service menu. Then the system prompts you to enter the station number (with the leading trunk group code, if needed). Mark the end of the entry with the confirm key or the “#” key on telephones without a display.

Requirements for resetting the telephone lock code:

- The telephone number of the telephone that you are using to initiate the reset must be entered as a station for “system telephone lock” (system settings).
- The system must be networked over the QSig+ protocol with the ISO-QSig protocol version.

9.25.10 COS Changeover (V3.0 SMR-3 and later)

Implementing features, see also Manager E COS Changeover

Manufacturer-specific expansions to the QSig protocol (QSig+) allow you to activate the telephone lock of a station networked over QSig+ with the “System telephone lock/COS changeover” feature.

The effects on the telephone are the same as for the individual lock code: the trunk access is reduced to the COS set system-wide (default = 1).

Initiate the COS changeover with the code “System telephone lock” or by selecting the correct entry in the service menu. Then the system prompts you to enter the station number (with the leading trunk group code, if needed).

On telephones with a display, you can use the confirm key after you have completed your entry to activate or deactivate the lock code, depending on the current state of the lock code. After you confirm the selection, the system displays an acknowledgment text.

On telephones without a display, you can turn the telephone lock on with the “*” key and off with the “#” key. These keys also indicate that you have finished entering the station number.

Requirements for COS changeover:

- The telephone number of the telephone that you are using to initiate the changeover must be entered as a station for “system telephone lock” (system settings).
- The system must be networked over the QSig+ protocol with the ISO-QSig protocol version.

10 Features for Call Detail Recording

10.1 Silent Reversal at Start and End of Call

Implementing features, see also Manager E Silent Reversal at Start and End of Call

Definition

Many countries use silent reversal to mark the beginning and end of outgoing calls on loop start trunks. These criteria are used for time recording within central call detail recording. This is particularly important when exact tracking of call charges is required (as in a hotel).

The feature can be configured per circuit.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	TM2LP	TML8W	TLA2/4/8 + GEE12 TLA4R	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Loop start trunk			

Dependencies/Restrictions

Subject	Dependency/Restriction
Silent Reversal	In countries where silent reversal is not signaled at the end of a call, the call duration is determined by the calling party hanging up the phone.

10.2 Advice of Charges at Station During Call (AOC-D) (not for U.S.)

Implementing features, see also Manager E Advice of Charges at Station During Call (AOC-D)

Definition

Call charge information can be recorded on both analog and digital trunks. Call charge evaluation for connections on loop start trunks is performed using the call charge pulses transmitted from the trunk in countries where call charge pulses are used. Call charge information received with the AOC (advice of charges) feature during external calls on digital trunks appears on the telephone display, provided that the carrier makes this information available. The public network supports the following AOC types:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if HiPath 3000/HiPath 5000 is unable to evaluate the call detail information of a service provider.
- AOC-D = Charging information during the call
- AOC-E = Charging information at the end of a call

As long as the user has not initiated another action, the final call charges for a call are displayed for a specific period of time at the end of a call and then added up in call charge memory.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Loop start: optiset E or optiPoint telephone with display	Loop start: GEE8; optiset E or optiPoint telephone with display	Loop start: GEE12/16/50; optiset E or optiPoint telephone with display	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Call details from the public network			

Dependencies/Restrictions

Subject	Dependency/Restriction
Analog telephone	On analog telephones, call charge pulses can be updated using a relay and a call charge counter.
MSI	MSI trunks require a separate call metering receiving equipment board.
Transfer	In the case of AOC-D, the station to which a call is transferred receives only those call charges that have accrued since the transfer.
Automatic recall	If a call is returned as a recall for unscreened transfer, the overall amount is displayed and calculated.
Toggle	Call charges for the current call are always displayed.

10.3 Call Duration Display on Telephone

Implementing features, see also Manager E Call Duration Display on Telephone

Definition

This feature shows the duration of external calls (incoming and outgoing) in the display as follows: HH:MM:SS. The system-wide option "Call timer display" must be activated for this.

The following applies up to and including V3.0 SMR-11: "Call timer display" option activated = default. The call charge display has priority.

Call detail information from CO	"Call timer display" option	Shown in display
Yes	Activated	Call charges
Yes	Not activated	Call charges
No	Activated	Call duration
No	Not activated	Dialed station number
If this option is activated, the call duration is displayed for incoming calls. Otherwise the station number/name of the caller is displayed.		

The following applies to V3.0 SMR-12 or later: "Call timer display" option not activated = default. Display of the call duration has priority.

Call detail information from CO	"Call timer display" option	Shown in display
Yes	Activated	Call duration
Yes	Not activated	Call charges
No	Activated	Call duration
No	Not activated	Dialed station number
If this option is activated, the call duration is displayed for incoming calls. Otherwise the station number/name of the caller is displayed.		

The start of call detail recording for analog trunks is activated by means of a timer (five seconds after end of dialing). In the case of digital trunks, recording is started when the call is accepted (at "connect"). The dialed station number is displayed until this point. Numbers dialed in suffix-dialing mode are displayed for approximately five seconds. The call duration is displayed again. Once the call is ended, the display returns to idle status (current time and date).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
S_0 / cordless telephone	The system does not support the call duration display feature on S_0 and cordless telephones (not for U.S.).

10.4 Call Detail Recording at Station (CDRS) (not for U.S.)

Definition

- Every optiset E, optiPoint, analog telephone, S_0 (or MSN), and cordless telephone in the system has two storage devices:
  - A call charge summation memory (call detail memory)
    At the end of an external call, the system adds the final charges to the charges already stored in the call detail memory on the station. optiset E and optiPoint users with a display can display their current charges by entering a code.
  - An individual call memory
    The system adds up the charges incurred during a call in this memory, even if the call consists of individual call segments, as in the case of the toggle feature. At the beginning of a new call, the individual call memory is reset to 0.

  The contents of the individual call memory appear first. A short time later, the contents of the cumulative call charge memory are displayed.
- You can use the system telephone (phone with programming authorization) as a charge display station. The user of this station can use the system administration to:
  - Display the cumulative call charge memory for one station.
  - Display the cumulative call charge memory for all stations (organized by station numbers).
  - Reset the cumulative call charge memory for a specific station.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).

From the system telephone, you can print the latest CDRS data on a printer connected to the V.24 interface, thereby printing the cumulative call charges for all stations connected to the system.

CDRS Data Output to $U_{P0/E}$ Port

You can also output the CDRT data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to adapter.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

GET Data Output via LAN Interface

You can transfer CDRS data to external applications via the LAN interface (Ethernet).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Loop start: optiset E or optiPoint telephone with display	Loop start: GEE8; optiset E or optiPoint telephone with display	Loop start: GEE12/16/50; optiset E or optiPoint telephone with display	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Call details from the public network			

Dependencies/Restrictions

Subject	Dependency/Restriction
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

10.5 Call Detail Recording, Attendant (CDRA) (not for U.S.)

Implementing features, see also Manager E Call Detail Recording, Attendant

Definition

The CDRA feature enables you to selectively record the call details for incoming and outgoing voice calls for which at least one call charge pulse has accumulated.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).

If a V.24 (RS-232) port was programmed for CDRA in the customer database, the call details are output to the printer. If the telephone is an optiset E or optiPoint telephone with display that has a programmed CDRA display key, the charges are also signaled on the station.

CDRA Data Output to $U_{P0/E}$ Port
You can also output the CDRT data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to adapter.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

CDRA provides the following data at the end of each call segment:

- Internal station number or name of the station.
- The external station number dialed (for outgoing calls) or the station number of the calling party (for incoming calls).
- Time (beginning of call) in hours, minutes, and seconds.
- Call duration in hours, minutes, and seconds.
- Amount due in local currency.

The data is entered at the end of each call segment and at the end of the call. Up to 20 call segments can be recorded simultaneously. This data is stored in the system until it is output to the printer and deleted by the attendant console using a procedure. If an overflow occurs, the oldest entry is overwritten first. The stored data is lost if there is a power failure.

Signals on the CDRA display key:

- LED lights up continuously:
  New CDRA call details that have not yet been displayed are waiting.
- LED off:
  Either CDRA call details that have been displayed at least once are waiting, or no entry was made.

Configuring a station as a pay phone (automatic CDRA):

If an internal station is configured as a pay phone, all chargeable calls are automatically identified as CDRA calls. A call that is transferred to another station from the pay phone is logged as a CDRC or CDRA call, depending on how the pay phone is configured.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements (call detail recording)	-	Loop start: GEE8	Loop start: GEE12/16/50	
Hardware requirements (telephone)	optiset E or optiPoint telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Call details from the public network			

Dependencies/Restrictions

Subject	Dependency/Restriction
Call charges	Each call segment is assigned to the user who picked up the segment.
Conference	In a conference, each external connection is recorded separately as a single segment.
Pay phone	A user can always display the call charges of only those call segments which were conducted from the assigned pay phones.
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

10.6 Call Detail Recording Per Trunk (CDRT) (not for U.S.)

Implementing features, see also Manager E Call Detail Recording Per Trunk

Definition

The system has a cumulative memory function for call charge amounts accrued per trunk. One memory area is permanently assigned to each trunk.

A system telephone can display and delete the cumulative memory via the system administration. Call charge deletion requires confirmation. The current CDRT data can be printed out via system administration. The printout contains a list of CDRT data for all trunks connected to the system.The current CDRT data can be printed out on a printer connected to one of the V.24 (RS-232) interfaces on the system.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).

CDRT Data Output to $U_{P0/E}$ Port
You can also output the CDRT data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to adapter.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

CDRT Data Output via LAN Interface
You can transfer CDRT data to external applications via the LAN interface (Ethernet).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Loop start: optiset E or optiPoint telephone with display	Loop start: GEE8; optiset E or optiPoint telephone with display	Loop start: GEE12/16/50; optiset E or optiPoint telephone with display	
Software requirements	V1.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Call details from the public network			

Dependencies/Restrictions

Subject	Dependency/Restriction
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

10.7 Account Code (ACCT)

Implementing features, see also Manager E Account Code

The account code feature is used together with central call detail recording (CDRC).

Definition

This feature enables you to assign call charges for a specific project to an account code so that call charges for specific projects can be printed out.

Users can enter an ACCT from any station. ACCT offers two procedures and three options:

Procedures:

- Mandatory ACCT:
  Users must enter an ACCT before the start of a call (after a trunk group is seized). For incoming calls, the ACCT entry is optional. The system applies the ACCT according to the option selected. If least cost routing is active, a flag in the dial plan signals that you need to enter an ACCT after the access code. The system treats this input as a “mandatory ACCT”.

	LCR Active	**LCR Inactive**
	Mandatory Dial Plan (35-8-3)	**Mandatory ACCT TG Set**
Electronic notebook (ENB)	ACCT requested	ACCT requested
SSD		
ISD		
Redial		
Caller list		
DSS key		

  A mandatory ACCT can be defined in the dial plan (LCR).|

- Optional ACCT:
  Users can enter an optional ACCT from any telephone before the start of a call. During an incoming or outgoing call, users can enter the ACCT from $U_{P0/E}$ telephones only. You can enter an ACCT during a call from optiset E entry, optiset E basic, and optiPoint 500 entry telephones only if the ACCT feature was programmed on a key or if automatic DSS system-wide has been turned off.

Options:

- ACCT not checked:
  The system does not check for an ACCT, which means you can enter an 11-digit ACCT. If the ACCT is less than 11 digits long, press # to mark the end of the procedure. If the ACCT is 11 digits long, you can dial another number immediately afterward (depending on the option, you need to enter the trunk group code or the station number).
  On analog (DP) and ISDN telephones, the “not checked” option can be used only if the ACCT is 11 digits long. Otherwise, the system will not complete dialing. You cannot use the # key or the substitution code to mark the end of input on these telephones.
- ACCT list checked:
  The system checks the ACCT against a list of verifiable ACCTs and accepts only valid entries. You can enter 11-digit ACCTs in the list. After entering a valid ACCT, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number). Do not press # to mark the end of the input. The system rejects invalid ACCTs by outputting a negative confirmation tone.
- Number of ACCT digits checked:
  The system checks an ACCT entry only to determine the number of digits. The number of digits to be checked is set in the system. Max. 11 digits can be checked. After the system checks the number of ACCT digits, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number).

Account codes are not printed out of call detail recording (CDRC) if the RS-232 output is connected directly to a printer because the printer format does not have a sufficient number of columns. However, if a call-accounting device is used, the compressed format of CDRC will include the account code information.

The ACCT is assigned to all subsequent parts (even if transferred or forwarded to another station) of the current call for CDRC.

There are 1000 possible account code entries; only digits 0-9 are allowed in an account code number.

If an optiset E or optiPoint 500 user finds that during a call the current account code applied to a call is incorrect or that a different account code is needed, the user can enter a different code number. The system will overwrite the currently flagged account code. CDRC sends a call record after each segment; therefore, previously completed call segments will be identified with the old account code number.

The non-verified and forced parameters determine, per trunk group, whether an account code is optional (non verified) or mandatory (forced).

If you select forced for a trunk group, all stations using that trunk group are required to use account codes to dial out. If you want some users to use account codes and other users not to use account codes, you need to program different trunk groups.

With the Check number of characters option, the contents of the account code number are not checked. You determine how many digits are permitted by using the drop-down list box Characters to be checked in HiPath 3000 Manager E, or Code Length in Manager T. The number of digits checked can be from one to eleven digits.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
Number of ACCTs in the system	1000	1000	1000	1000
Max. length of ACCT	11	11	11	11

Dependencies/Restrictions

Subject	Dependency/Restriction
DISA, external CF, callback, transit	The system does not query the mandatory ACCT.
Electronic notebook (ENB)	You can program ACCT code + ACCT + station number in the ENB.
Conference	An ACCT entered during a conference with external station is assigned to all participating calls and trunks.
Redial	For V1.2 or later, an ACCT entered can also be stored in redial memory. This is true only if the appropriate system-wide flags are set.
Least cost routing (LCR)	Mandatory ACCT is possible with or without LCR.
Telephones	Users of telephones without displays must dial the seizure code after the ACCT. On system telephones with displays, a prompt to enter the ACCT appears on the screen.
S_0 telephones	If the unchecked ACCT option is selected on S_0 telephones, you must always enter the full number of digits (you cannot press #). If the ACCT is checked, or a fixed number of digits is entered, the system detects the end of the ACCT.

Subject	Dependency/Restriction
ACCT while on a call	Only optiset E and optiPoint 500 users can enter an account code while engaged in a call.
When to enter ACCT	You can enter an account code from any type of terminal (optiset E, optiPoint 500, analog) before the call begins (before line seizure). Only an optiset E or optiPoint 500 telephone (includes optiClient Attendant) can enter an account code during an incoming or outgoing external call.
No check option	This option is not possible if there are trunk groups flagged with the forced (mandatory) entry procedure. That is, the parameter forced and the option No check are mutually exclusive.
Invalid entry	If the ACCT entry is incorrect, the user sees the display *Invalid entry* and the call is dropped.
Non-display telephones	If an account code is required, the user hears silence after dialing the trunk group access code. If the user does not dial an account code within 30 seconds (this timer is not variable), the user receives a busy tone, and the call is dropped. If the correct entry is made, confirmation tone (three short bursts of tone) is heard and the user can proceed with dialing.

10.8 Call Detail Recording Central (CDRC)

Implementing features, see also Manager E Call Detail Recording Central

Definition

The HiPath 3000/HiPath 5000 can transmit consecutive call detail recording central (CDRC) information for each call segment completed or for each incoming call to a connected device. The device is normally a PC for analyzing the received data or a printer.

In V1.2 and later, call data records can be recorded for external calls that were not completed. For example, this gives the party calling proof that the destination station did not accept the attempted call (marked in the output log with the call time “00:00:00”). The “CDRC outgoing without connection” feature applies to digital external traffic using ISDN and CorNet/Qsig and to all stations. With analog external traffic (loop start), a call data record is always recorded, no matter whether “CDRC outgoing without connection” has been configured or not.

Use the call charge factor, which is defined as a currency amount (including a mandatory surcharge) for each call charge unit or pulse, to convert call charge pulses to monetary amounts (see Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).

The following options are available for **exporting the data to an external output device**:

- application programming interface (V.24)
  CDRC data is exported to call detail recording applications such as Teledata.
- PC attendant console port
  Users can also forward the CDRC data to a optiClient Attendant (PC attendant console port). This transfers the call data to the Charge.dat file, which is created or updated whenever a new record is entered. You can use software to evaluate this data. The PC attendant console supports the optiset E control adapter, optiset E data adapter, and $U_{P0/E}$ card.
- $U_{P0/E}$ port
  An optiset E control adapter, to which you can attach a printer or PC, must be connected to the $U_{P0/E}$ port. The system supports only one adapter per call data output. You can configure the output as follows:
  - On the communications server, set call data output to adapter.
  - Enter the telephone number.
  - If only one optiset E control adapter is connected, you can choose any slot in the telephone.
  - If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
  - The transmission rate is permanently set to 9600 baud.

- LAN interface (Ethernet)
  CDRC data can be exported to external applications via the LAN interface (Ethernet).

The CDRC output can be in two **different formats**:

- Compressed format (via V.24 / via LAN) for PC or call charge computer
  The system outputs all data (including ACCT) without separating spaces, without headers, and without form feed. Call charge pulses, call charge amounts or arithmetic units are output.
- Long format for printer
  THE system outputs all data (except ACCT) separated by spaces, with header (in the language selected for the system) and form feed. The call charge amount is output.

The following rules apply to the line format:

- The carriage return (CR) and line feed (LF) control characters are transmitted at the end of each record.
- Data not supplied and unused fields are filled with spaces.
- In compressed format, the data output is consecutive. No form feed (FF) is transmitted.
- In long format, each page contains a one-line header followed by a blank line. After 62 characters are printed, a form feed automatically executes.

The output contains the following information:

- Date (at end of call), 8 characters
- Time (at end of call), 8 characters
- Number of seized trunk, 3 characters
- Internal station number (max. 6 digits)
- Incoming ring duration
- Call duration, 5 characters
- External station number (up to 25 digits if available)
- Call charge pulse/amount, 11 characters (blank in U.S.)
- Additional information (such as incoming call, outgoing call, transferred call, conference, DISA, call setup charges), 2 characters

The following data is always compressed prior to output:

- ACCT (up to 11 digits)
- MSN used (up to 11 digits for multi-device connections)
- LCR access code (trunk access code, 6 digits)

- LCR route used (dialing rules table, 2 digits)
- Information element
- Additional data in U.S.:
  - PRI Nodal Service
  - PRI WATS band
  - PRI Carrier Identification Code

Options

All fields are predefined and cannot be changed except for the options mentioned in this section.

- The last four digits of the destination number can be suppressed in the call record. If selected, the last four spaces are filled with the symbol "?".
- The Call Duration field can be suppressed from the record. If selected, this field is blank.
- Incoming calls can be recorded. The default value is No (only outgoing calls are recorded).
- A call record is started as soon as an incoming call starts ringing into the system.
- Other configurable parameters: which RS-232 port is to be used for the CDRC output and the baud rate (2400, 9600, or 19200).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
General requirements	Printer, call charge computer			
Number of calls buffered	300	300	150	50
	20000[1] V4.0-SMR11 or later			

1 Requirement is MMC > 16 MB and a Contol Boards, which supports MMC.

Dependencies/Restrictions

Subject	Dependency/Restriction
PC/printer failure, buffer full	If the connected device fails, some records are buffered in the system and transmitted when the device is reactivated. If the buffer is full, all additional data records are lost.
Timer for analog trunks	A system pseudo-answer timer (Artificial End-of-Dial) is used when the call is placed over analog trunks without answer supervision to determine the beginning of the call record
CDRC outgoing without connection	No logging takes place • for call attempts that are not allowed (LCR, denied lists). • for premature termination of the call attempt.
Charges before connect	If charges arise even before the connection is made (such as occurs in Austria), these are recorded, regardless of whether or not “CDRC outgoing without connection” has been selected

Output formats

- Compressed Output Format for Call Details – Output via Application Programming Interface (V.24)

```
-------------------------------------------------------------------------------------------------------------------------
                                                                                                                1         1
0         1         2         3         4         5         6         7         8         9         0         1
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
-------------------------------------------------------------------------------------------------------------------------
1 Date (8 digits)
|        2 Time (8)
|        |        3 Trunk (3)
|        |        |  4 internal station number (6 digits)
|        |        |  |      5 Ring duration (5)
|        |        |  |      |     6 Call duration (8)
|        |        |  |      |     |       7 Station number (25)
|        |        |  |      |     |       |                         8 Call charges (11) (blank in U.S.)
|        |        |  |      |     |       |                         |          9 Information element (2)
|        |        |  |      |     |       |                         |          | 10 ACCT (11)
|        |        |  |      |     |       |                         |          | |          11 MSN (11)
|        |        |  |      |     |       |                         |          | |          |          12 Seizure code (5)
|        |        |  |      |     |       |                         |          | |          |           LCR route (2)
|        |        |  |      |     |       |                         |          | |          |          |
|        |        |  |      |     |       |                         |          | |          |          |
|        |        |  |      |     |       |                         |          | |          |          |    |  ...
|        |        |  |      |     |       |                         |          | |          |          |    |    ...
V        V        V  V      V     V       V                         V          V V          V          V    V
11.12.0008:23:23  4    16      00:05:2302317324856                        12 2                902725  841     (1)
11.12.0009:12:45  3    18      00:01:23834756                             34 212345678901                2   (2)
11.12.0009:25:34  2    1100:34                                               1               (3)
11.12.0010:01:46  1    12      00:12:5383726639046287127384                5 2
11.12.0010:03:42  2    14      05:42:4338449434444495598376              245 2
11.12.0010:23:24  2    15      00:02:22123456789012341????                83 2               (4)
11.12.0011:12:45  3    18      00:01:23834756                             34 2
12.12.0012:23:34  3    1200:1500:03:12                                       1               (5)
12.12.0012:23:50  4    11      00:03:583844733399                          7 2
12.12.0013:23:54  3    17      00:02:233844733399                          8 5               (6)
12.12.0014:05:24  3    18      00:01:23834756                             31 2
12.12.0014:38:43  2    12      00:03:242374844                            63 2               (7a)
12.12.0014:43:33  3    12      00:00:255345545556                          5 2               (7b)
12.12.0014:44:12  2    12      00:12:122374844                            12 8               (7c)
12.12.0014:44:12  3    12      00:12:125345545556                         10 8               (7d)
12.12.0014:56:24  2    12      00:23:462374844                            84 2               (7e)
13.12.0009:43:52  1     5      00:01:0539398989983                        76 4               (8)
14.12.0012:23:34  1     600:1400:02:3427348596872347569036                    3               (9)
**  100 calls lost  **                                                                        (10)
15.12.0009:44:34  4    15      00:02:12189????                            23 2
15.12.0009:56:33  3    14      00:05:451283394495                         28 2
15.12.0012:20:26  1    12              0230298007766                         0               (11a)
15.12.0012:23:34  1    1200:3400:02:340230298007766                          1               (11b)
15.12.0013:43:25  3    15      00:05:2408972212345                           1               (12a)
15.12.0013:43:25  4    15      00:05:240231471154321                      74 9               (12b)
15.12.0013:45:28  4    18              0230298007252                         0               (13a)
15.12.0013:45:28  4    32              0230298007252                         0               (13a)
15.12.0013:45:28  4    16              0230298007252                         0               (13a)
15.12.0013:46:18  4    1600:50         0230298007252                         1               (13b)
15.12.0013:49:28  4    16      00:00:0002317324856                           2               (14)
01.01.0000:00:00  8                                                       23 2               (15)

-------------------------------------------------------------------------------------------------------------------------
```

Explanation of the sample entries shown on Page 10-20:

(1) Outgoing connection from stn 16 on trunk 4 using the MSN “902725”. End of call at 8:23:23 on 12/11/00. Duration of the call: 5 minutes, 23 seconds. Number called: 02317324856. Accrued call charge pulses: 12. The seizure code "841" was used for call setup.

(2) Outgoing connection with 11-digit account code (ACCT) “12345678901”. Route “2” was used for LCR.

(3) Unanswered incoming call without station number (missing origin address, active station number suppression CLIR at calling station).

(4) Outgoing connection with suppression of the last 4 digits.

(5) Incoming connection with ringing and call duration.

(6) Forwarded call.

(7) Int/ext/ext conference:
(7a) Stn 12 sets up a first external call on trunk 2 (“2374844”),
(7b) Stn 12 sets up a second external call on trunk 3 (“5345545556”),
(7c) Stn 12 is involved in a conference with trunk 2 and
(7d) with trunk 3.
(7e) Trunk 3 drops out of the conference. The call on trunk 2 is treated like a normal outgoing call.

(8) Outgoing connection (other services).

(9) Incoming connection (other services).

(10) Loss message: 100 records were lost.
Errors which prevent call data output on the V.24 interface can be caused by the following, for example:
- Connected device is turned off or suffers a power failure
- Printer is out of paper
- Printer is offline
- Printer has a paper jam
- CDRC output is interrupted by CDB output
- Interface cable is defective or incorrect

In these or similar cases, the call records accumulated during this time are buffered in the system. The first 300 (HiPath 3750 and HiPath 3700), 150 (HiPath 3550 and HiPath 3500) or 50 (HiPath 3350, HiPath 3250 and HiPath 3300 [not for U.S.]) records can be buffered.
Additional records are only counted by the system and then discarded. If the connection can be restored to the connected device, a loss message indicating the number of lost records (that is,100 calls lost) is issued after the buffered records are output.

(11) Incoming call with transmitted caller station number:
(11a) Caller list: When the call arrives, an information line is immediately output indicating the date, time, trunk, station number, incoming external station number (if available), and information element “0” (used, for example, with a PC: start database search -> message appears on station’s monitor).
(11b) Station 12 accepted the call after a ringing duration of 34 seconds. This line is output at the end of the call.

(12) Call forwarding with an external destination:
(12a) Incoming call for station 15 on trunk 3 with transmitted station number, no ringing duration due to call forwarding (see 12b),
(12b) Call forwarded (12a) to trunk 4 for station number 0231471154321, 74 call charge pulses (not for U.S.) have accrued for the forwarded call.

(13) Incoming call to subscriber group (stations 18, 32, and 16):
(13a) The three entered stations are called simultaneously; they are listed in the order in which they were entered in the group (the second station is listed first).
(13b) The call was not accepted by any group member. After the call has ended, a line is output indicating the ringing duration for the last called or entered station.

(14) Outgoing connection attempt (CDRC outgoing without connection) from stn 16 on trunk 4 at 13:49:28 on 12.15.2000. Number dialed: 02317324856.

(15) Output after a power failure or reset: 23 call detail units on trunk 8 were present before the power failure.
When a power failure or reset occurs, the call charges accrued for each trunk are stored in nonvolatile system memory (CDRT).
The system checks for consistency between the output and internally stored data following a power failure or system restart. The system also checks to determine whether call charges are still stored that have not yet been output via the V.24 (RS-232) interface. If this is the case, the system outputs a data line using the format illustrated in the example (15) for each affected trunk: (output does not include station number).

- Compressed Output Format for Call Details – Output via LAN Interface

```
                                                                                                                                                  1         1
0        1         2         3         4         5         6         7         8         9         0         1
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
--------------------------------------------------------------------------------------------------------------------------------------------------
1 Date (8 digits)
|        2 Time (8)
|        |        3 Trunk (3)
|        |        | 4 internal station number (6 digits)
|        |        | | 5 Ring duration (5)
|        |        | | | 6 Call duration (8)
|        |        | | | |        7 Station number (25)
|        |        | | | |        |           8 Call charge pulses (11) (blank in U.S.)
|        |        | | | |        |           |  9 Information element (2)
|        |        | | | |        |           |  | 10 ACCT (11)
|        |        | | | |        |           |  | |           11 MSN (11)
|        |        | | | |        |           |  | |           |      12 b = Seizure code (5)
|        |        | | | |        |           |  | |           |      |   13 LCR route (2)
|        |        | | | |        |           |  | |           |      |   |  ...
|        |        | | | |        |           |  | |           |      |   |    ...
V        V        V V V V        V           V  V V           V      V   V
13.12.99;08:23:23;4;16;;00:05:23;02317324856;12;2;12345678901;902725;841;;

--------------------------------------------------------------------------------------------------------------------------------------------------
```

Call detail records can be output via a LAN interface using two different settings:

- DOS mode (carriage return (CR), line feed (LF)) = default or UNIX mode (line feed (LF)) at the end of a call data record.
- Separators (";" = default or "|") between the logical elements of a call data record; the record is no longer position-oriented.

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 1 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
1	1 to 8	Date at end of call: DD.MM.YY (DD = day, MM = month, YY = year)	8	Left
2	9 to 16	Time at end of call segment or an unanswered incoming call: hh:mm:ss (hh = hours: value range 00 - 23, mm = minutes: value range 00 - 59, ss=seconds: value range 00 - 59)	8	Left
3	17 to 19	Trunk: Trunk number Value range 1 - 120	3	Right

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 2 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
4	20 to 25	Station: Internal station number Value range: 000000 - 999999 (missing digits are replaced by spaces.) In the case of unanswered calls, this is the last station called (as in a hunt group, call forwarding, call forwarding—no answer). With group call, this is the last station entered. In the case of answered calls, it is the station that accepted the call. A programmed SNO prefix (with networking only) is not output. If the internal numbering was converted to a maximum 6-digit numbering plan, the converted station number is output.	6	Right
5	26 to 30	Ringing duration of an incoming external call: mm:ss (mm = minutes: value range 00-59, ss = seconds: value range 00 - 59) The system displays all incoming calls as long as the output of ringing duration has been configured in the system. If a counter overflow occurs (duration > 59:59), “59:59” is output. A change in date or time during system operation can result in this situation.	5	Left
6	31 to 38	Duration of the call or call segment: hh:mm:ss (hh = hours: value range 00 - 23, mm = minutes: value range 00-59, ss = seconds: value range 00 - 59) If a connection has not been established for an incoming call, 8 spaces are output here. If a counter overflow occurs (duration > 23:59:59), “23:59:59” is output.	8	Left

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 3 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
7	39 to 63	Dialed or received external station number (if available): nnnnnnnnnnnnnnnnnnnnnnnn (n = dialed or received character: value range 0 ... 9, *, #, ?) Output occurs for incoming and outgoing calls (if available). With outgoing calls, the dialed station number or, if available, the station number transmitted via COLP is displayed. In the case of an active data protection function, the last four digits dialed are replaced by the symbols. If no station number information is available, 25 spaces are output.	25	Left

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 4 of 7)

<table>
<tr><th>Field position</th><th>Fields (V.24 output only)</th><th>Definition</th><th>Number of characters</th><th>Orien tation</th></tr>
<tr><td>8</td><td>64 to 74</td><td>Call charge pulses for a call segment:
zzzzzzzzzzz (blank spaces in U.S.)
(z = digit: value range 0 - 9)
You can select either call charge pulses or call charge amounts.
Use the call charge factor, which is defined as a currency amount (including a mandatory surcharge) for each call charge unit or pulse, to convert call charge pulses to monetary amounts (see Section 10.11, “Call-Charge Display With Currency (not for U.S.)”).
Setting the call charge factor:
• With calculation detail: call charge factor = 100% + mandatory surcharge
• Without calculation detail: call charge factor = amount/unit + mandatory surcharge
The system records the call charges with or without a surcharge depending on the calculation detail (Section 10.11):
<table><tr><th rowspan="2">Call Charge Display</th><th colspan="2">Computing accuracy</th></tr><tr><th>With</th><th>Without</th></tr><tr><td>Pulses</td><td>HiPath arithmetic units output without surcharge</td><td>Call charge pulses output without surcharge</td></tr><tr><td>Amounts</td><td>HiPath arithmetic units output with surcharge</td><td>Monetary amounts output with surcharge</td></tr></table>
The system outputs data whenever call charges accrue for the call segment (even with transferred calls). If no call detail information is available, these 11 characters remain blank.</td><td>11</td><td>Right</td></tr>
</table>

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 5 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
9	75 to 76	Information element: additional information Value range: 0 - 9 Meaning: • 1 = Incoming connection (voice/3.1 kHz audio call) • 2 = Outgoing connection (voice/3.1 kHz audio call) • 3 = Incoming connection (other services) • 4 = Outgoing connection (other services) • 5 = Incoming connection forwarded • 6 = Outgoing connection forwarded • 7 = Int/ext/ext conference with incoming connection/transit through external transfer • 8 = Conference with outgoing connection/transit through external transfer • 9 = Outgoing connection via call forwarding to an external destination • 0 = Call information (caller list) is output immediately when an incoming call is received (output can be suppressed). This can be used, for instance, for a database search by a PC. When multiple stations are called, a line is output for each individual station (without ring duration, call duration, call detail information).	2	Right

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 6 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
Continuation of 9	75 to 76	• +20 = Offset as a code for call setup charges (connection setup without call duration) • +30 (HiPath 3000/HiPath 5000 V1.0 and later) = offset as an ID for a follow-up data record in the case of – call duration > 24 h. – contiguous call segments with the same line/station number (for example, after transferring a call, after clearing a conference). Can occur in combination with offset +40. • +40 = Offset for a data record with transit code (by an extension in the subsystem). Can occur in combination with offset +30. • +50 = Offset as a code for DISA calls • +70 = combination of offsets +30 and +40	2	Right
10	77 to 87	Account code (ACCT) entered by the user for this call: pppppppppp p = ACCT digit: value range 0 - 9) If an ACCT has not been entered, 11 spaces are output. If the ACCT is shorter than 11 digits, the remaining characters are filled with spaces.	11	Left
11	88 to 98	MSN used: mmmmmmmmmm (m = MSN digit: value range 0 - 9) Information is displayed if the user has programmed an MSN key. Non-existent characters are replaced by spaces. If MSN information is not available (as in a point-to-point connection), 11 spaces are output instead of these characters.	11	Right
12	99 to 103	Seizure code used, access code: bbbbb (b = digit of the seizure code: value range 0 - 9) Non-existent characters are replaced by spaces.	5	Right

Table 10-1 Compressed Output Format—Explanation of Output Fields (Sheet 7 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
13	104 to 105	LCR route used: rr (r = digit of the dialed route: value range 0 - 9) Non-existent characters are replaced by spaces.	2	Right
14	106 to 107	PRI nodal service: nn (n = digit: value range 0 - 9) Non-existent characters are replaced by spaces.	2	Right
15	108	PRI WATS band: w (w = digit: value range 0 - 9) If no information is available, a space is output.	1	–
16	109 to 112	PRI Carrier Identification Code (CIC): cccc (c = CIC digit: value range 0 - 9) Non-existent characters are replaced by spaces.	4	Right
14	106 to 107	U.S.-specific fields are filled with blanks in other countries.	2	Right
15	108		1	–
16	109 to 112		4	Right
17	113 to 114	End of line control character (carriage return [CR], line feed [LF])	2	–

- Long Output Format for Call Data

The header in the long output format is output in the language used across the system.
After 62 lines have printed (including header), a form feed (FF) is carried out and the next page begins with a header.

```
-------------------------------------------------------------------------------------------------------------------------
Date Time Trk Stn Call Duration Station number Amount I

11.12.93 08:23:23   4     16       00:05:23 02317324856               20.23  2
11.12.93 09:12:45   3     18       00:01:23 834756                     0.69  2
11.12.93 09:25:34   2     11 00:34                                          1
11.12.93 10:01:46   1     12       00:12:53 83726639046287127384      413.69  2

-------------------------------------------------------------------------------------------------------------------------
```

Table 10-2 Long output format - explanation of output fields

Field	Fields	Definition	Number of characters	Orien tation
Date	1 to 8	see table, field position 1	8	Left
Time	10 to 17	see table, field position 2	8	Left
Trk	19 to 21	see table, field position 3	3	Right
Stn	23 to 28	see table, field position 4	6	Right
Call	30 to 34	see table, field position 5	6	Left
Duration	36 to 43	see table, field position 6	8	Left
Station number	45 to 64	Dialed or received external station number (if available):nnnnnnnnnnnnnnnnnnn (n = dialed or received character: value range 0 ... 9, *, #, ?) see also table, field position 7	20	Left
Amount	66 to 76	Call charge amount for a call segment: zzzzzzzzzzz (blank spaces in U.S.) (z = digit: value range 0 - 9) The system outputs data whenever call charges accrue for the call segment (even with transferred calls). If no call detail information is available, these 11 characters remain blank. A comma (,) separates the amount from the decimal places.	11	Right
I	78 to 79	see table, field position 9	2	Right
–	80 to 81	End of line control character (carriage return [CR], line feed [LF])	2	–

10.9 Toll Fraud Monitoring

Implementing features, see also Manager E Toll Fraud Monitoring

Definition

This feature can provide the customer with protection against toll fraud.

In the case of trunk-to-trunk connections, the customer can detect a possible fraudulent use by monitoring outgoing trunk calls.

When connection times exceed a defined duration, an indication is displayed on the attendance console (AC). If necessary, the connection can be released by means of a procedure.

No default time (Toll Fraud monitoring timer) is specified for this feature; that is, the attendant console will not be alerted unless the timer is set to a specific value.

Operation

If a trunk-to-trunk connection (for example a connection set up via DISA) exceeds the system timer defined by Toll Fraud monitoring timer, a display message is sent to the Attendant position.

The attendant is presented with the following display: *Time exceeded Clear Error Message?* The attendant first scrolls to find the number of the trunks involved in the call and can release the trunks. On the Memory telephone, there is a cursor to select the individual line. Or, after taking note of the numbers, the attendant clears the error message and can invoke the Release Trunk feature to clear the connection at a later time, if appropriate.

The attendant invokes the Release Trunk feature from an idle state by dialing the default access code **43* or by pressing the Program/Service key and scrolling to and selecting the prompt ***43=Release trunk?. The attendant is then prompted to enter a trunk number. After entering the trunk number from above, the connection is released.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

10.10 Printer Pipe Mode (V.24 [RS-232] Range Extension for Call Data)

Implementing features, see also Manager E Printer Pipe Mode

Definition

This feature outputs call charges to the optiset E control adapter.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Settings	The parameters for call data output to the optiset E control adapter are permanently set to: 9600,N, 8, 1

10.11 Call-Charge Display With Currency (not for U.S.)

Implementing features, see also Manager E Call Charge Display With Currency

Definition

Call charge information received with the AOC (advice of charges) feature during external calls on digital trunks appears on the telephone display, provided that the carrier makes this information available.

The public network supports the following AOC types:

- AOC-D = Charging information during the call
- AOC-E = Charging information at the end of a call
- AOC-S = Charging information at call setup

With AOC-D and AOC-S, digital exchanges can also transmit currency amounts that are then added to the call data evaluated in the system. These amounts are not multiples of the call charge pulses or call detail units; they are actual currency amounts.
The new "calculation accuracy" parameter helps avoid inaccuracies from arising when recording the call data. It determines

- The number of decimal points the system uses for evaluating the call data = minimum currency amount.
- The maximum number of currency amounts added up in memory = maximum total currency amount.

Set the "Calculation accuracy" parameter so that the system accuracy is equal to the accuracy of the currency amounts transmitted by the ISDN exchange. If the maximum of three decimal places is insufficient, the system automatically rounds up the number to the next unit. The following values are possible:

Computing accuracy	Minimum Currency Amount	Maximum Currency Amount
3 (Pounds Sterling)	$1 \times 10^{-3} = 0.001$	$1 \times 10^{-3} \times (2^{32} - 1) =$ around 4.3 million
2 (e. g.for euros)	$1 \times 10^{-2} = 0.01$	$1 \times 10^{-2} \times (2^{32} - 1) =$ around 43 million
1	$1 \times 10^{-1} = 0.1$	$1 \times 10^{-1} \times (2^{32} - 1) =$ around 430 million
0	$1 \times 10^{0} = 1$	$1 \times 10^{0} \times (2^{32} - 1) =$ around. 4.3 billion

If you set Calculation accuracy = Via call charge pulse, the system switches back to evaluating call data in the form of call-charge pulses.

You cannot use HiPath arithmetic units if the digital exchange supplies call charge pulses.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Plus Products	Select the factor for converting call detail units to currency amounts as follows: Conversion factor = (call charge factor in %) **/** (100 x $10^{\text{calcuation accuracy}}$)

11 ISDN Features

11.1 Euro-ISDN Features (not for U.S.)

Implementing features, see also Manager E Euro-ISDN Features

Definition

HiPath 3000/HiPath 5000 complies with the DSS1 standard, which specifies the requirements for the uniform communication structure standardized by ETSI throughout Europe.

Euro-ISDN provides users with various features that can be activated either permanently in the trunk or by means of a procedure. It is not necessary to configure the feature specifically.

The features available with Euro-ISDN and HiPath 3000/HiPath 5000 are listed below.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Long S_0 bus	Not available with TA-S_0 and STMD8 (HiPath 3750 and HiPath 3700).
Features	Operation for features is the same as for analog stations. Control is by means of information elements in the protocol.
PC connected to S_0	A PC can be connected to the internal S_0 applications bus using an ISDN S_0 card.

11.1.1 Direct Inward Dialing (DID)

Definition

This feature allows a direct connection via the public network to an extension in a communications server using the ISDN numbering plan.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	–	–	–	–

Dependencies/Restrictions

Subject	Dependency/Restriction
DID	The extensions in the communications server must have at least outward restricted class of service, and direct inward dialing must be permitted.

11.1.2 Multiple Subscriber Number (MSN)

Definition

Multiple subscriber numbers enable you to assign several different station numbers on the same S_0 basic access (bus or multi-device connection). You can assign each terminal an MSN up to 11 digits long so that it can be called selectively.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	S_0 trunk board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
MSN	MSNs can be up to 11 digits long. If an MSN is too long, a right-justified evaluation of the digits is performed.
MSN	The system activates features based on MSNs.
Call detail recording central (CDRC)	Call detail recording central is possible.
MSN	If the MSN for a "Setup" is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use (optiset E or optiPoint 500), the "Setup" is rejected.

11.1.3 Default Station Number Instead of Multiple Subscriber Number (MSN)

Definition

This feature was created to increase security and to settle call charges (in a hotel environment, for example). Previously, the system was able to automatically configure each valid MSN. This meant that the settlement of call charges and call detail recording took place under a number which the CS operator did not necessarily enter.
In addition to dialing an MSN, users now have the option of dialing the internal default station number instead.
Below is a brief explanation:
The system assigns a sequential default number to each port, and therefore each telephone, in ascending order (starting with 101 in the HiPath 3750 and HiPath 3700 system). This means that each ISDN S_0 bus is assigned a default number. For an ISDN adapter, the default number is identical to the number of the logical port in the client (secondary) optiset E or optiPoint 500 telephone. Permitted call numbers are assigned by default, however, they can be changed using Manager E. Every station number is always assigned to one logical port number.
The default numbers can be used as follows:

- Outgoing call setup:
  The system sets up the call using the default number, regardless of the MSN sent by a telephone or application. Customers are billed on the basis of the default number (in a hotel environment, this can be the room number), combined with a fixed number combination.
- Incoming call setup:
  When a customer equates the MSN of an application (which may be installed on a notebook computer and connected to the hotel telephone network via an ISDN adapter) with the default number of a hotel room (combined with a fixed number combination), callers can reach the PC directly from the outside by direct inward dialing.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	S_0 trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

11.1.4 Calling Line Identification Presentation

Definition

This feature transmits the caller's own station number to the called party, where it can be displayed if proper equipment is available. The public network must support station number transmission.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	optiset E or optiPoint 500 telephone with display			
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CLIP	Must be released by the carrier.

11.1.5 Configurable CLIP

Definition

The call number specified here is transferred to the called telephone instead of the DID number and displayed on the device. The "Configurable CLIP" system-wide flag must be activated for this.

In an entry is not made in the CLIP column, the DID number is transferred.

Example: In the case of calls by hunt group members, only the hunt group number should be displayed on external devices. The hunt group number must therefore be specified in the CLIP column for all members. The internal call number is displayed within a system or network independent of the CLIP specification.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	optiset E or optiPoint 500 telephone with display			
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V3.0 or later	V3.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CLIP/LIN	CLIP and LIN (Location Identification Number; USA only) are mutually exclusive. By default, LIN is activated for the USA and CLIP is activated for all other countries. If CLIP is activated for the USA, LIN is automatically deactivated.

11.1.6 Calling Line Identification Restriction (CLIR)

Implementing features, see also Manager E Calling Line Identification Restriction (CLIR)

Definition

This feature suppresses the transmission of the calling party's station number. The public network must support suppression (temporary or permanent).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CLIR	Calling line identification restriction can be defined across the system.
CLIR	HiPath 3000 Manager E can be used to ignore an activated CLIR setting across the system, allowing the calling party's station number to be displayed (on the development level only). This can be useful for emergency calls and in similar situations.
CLIR	Calling line presentation restriction per station: • *86 = activate • #86 = deactivate It is not possible to ignore an activated CLIR setting per station.

11.1.7 Connected Line Identification Presentation (COLP)

Definition

This feature allows the calling party to determine whether the connection has actually been connected to the station called or whether it was picked up by a different station.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	optiset E or optiPoint telephone with display			
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
COLP	Must be released by the carrier.

11.1.8 Connected Line Identification Restriction (COLR)

Definition

This feature suppresses transmission of the called party's station number to the calling station. Called parties can use COLR to prevent their numbers from being displayed on a calling station.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
COLR	Same CDB entry as CLIR.

11.1.9 Advice of Charge (AOC)

Definition

This feature offers the user call detail information and must be provided by the pubic network. The information is transmitted in three ways:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if HiPath 3000/HiPath 5000 is unable to evaluate the call detail information of a service provider.
- AOC-D - Advice of charges during the call.
- AOC-E - Advice of charges at the end of the call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
AOC	Some countries transmit call charge pulses instead of the amount. In this case, the received pulses are converted to currency amounts using a call charge factor (as on analog trunks).

11.1.10 Call Forwarding (CF)

Definition

Three different types of call forwarding (CF) are available:

- **Chaining call forwarding unconditional**
  Users can activate variable call forwarding or call forwarding preset by key programming (unconditional, immediate) for the following call types:

  – Incoming internal calls only

  – Incoming external calls only

  – All calls

  This is possible even if the same station is already set as a forwarding destination or if the forwarding destination has already activated call forwarding.
  The message “Chaining invalid” no longer appears when you enter a second call forwarding destination during programming.
  When a user forwards a dialed party to a station which already activated unconditional, immediate call forwarding to another station, the system monitors the number of call forwarding operations allowed. A preprogrammed counter limits the number of call forwarding operations to a total of 5.

  The following example clarifies this procedure:

  – Stn A activated call forwarding to stn B: 1. CFU

  – Stn B activated call forwarding to stn C: 2. CFU

  – Stn C activated call forwarding to stn D: 3. CFU

  – Stn D activated call forwarding to stn E: 4. CFU

  – Stn E activated call forwarding to stn F: 5. CFU

  – Stn F activated call forwarding to stn G: 6. CFU (not possible)

  If stn X calls stn **A**, the call reaches stn **F**, **not stn G**.
  The system forwards the counters with CFU, but not with CFB or CFNR.

- **Call forwarding busy (CFB)**
  Same as CFU but only if the line is busy.

- **Call forwarding no reply (CFNR)**
  Same as CFU, but only if the call is not answered within 15 seconds (time is configurable).

Use call management to define the lines for busy and no reply.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CF	In the case of a point-to-point connection, the entire line is forwarded. In the case of a point-to-multipoint connection, only the MSN assigned to the extension with programming authorization is forwarded. If no MSN is assigned to this station. call forwarding cannot be activated.
CF	Call forwarding is always executed for the first basic access, that is the first S_0 port must also be available in the system.
Internal to S_0	Internal stations support CFU only (to prevent conflicts with call management).

11.1.11 External Call Forwarding

Definition

If you have assigned an MSN to a subscriber group, any member of the group can activate and deactivate external call forwarding for this MSN, provided that the user is authorized to use external call forwarding. A total of 10 multiple subscriber numbers can be forwarded.

If you have assigned an MSN to a subscriber group, any member of the group can activate and deactivate external call forwarding for this MSN.

Users can enter only one forwarding destination per MSN.

There are three different versions of the feature:

- Call forwarding unconditional (CFU)
  The carrier forwards all calls to this MSN directly, regardless of the MSN status.
- **Call forwarding busy (CFB)**
  Calls are forwarded only if the MSN dialed is busy.
- **Call forwarding no reply (CFNR)**
  Calls are forwarded only if the destination does not answer the incoming call within a preset period of time, such as 15 seconds (time is configurable).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	S_0trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CF	Not possible with an S_{2M} port.
CFU	External call forwarding has a higher priority than night answer.
CFU	The number of MSNs for external call forwarding cannot exceed 10.

11.1.12 Call Deflection (CD)

Definition

If a station has activated external call forwarding, HiPath 3000/HiPath 5000 attempt to forward calls to the trunk using this feature. In this case, the new call destination and the station number of the forwarding station are provided to the trunk in the call deflection activation message when the call arrives. If external call forwarding by call deflection is not possible, the system handles call forwarding.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware require-ments	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	–	–	–	–

Dependencies/Restrictions

Subject	Dependency/Restriction
Call detail information	When call deflection is used, HiPath 3000/HiPath 5000 receive no call detail information for the forwarded call. Customers are billed by their local Telecom.

11.1.13 Subaddressing (SUB)

Definition

Subaddressing allows the addressing capacity to be expanded regardless of the ISDN station number or additional information to be transmitted to the station dialed. This makes it possible to initiate certain procedures.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
SUB	The flow of information is in one direction only.

11.1.14 Malicious Call Identification (MCID)

Implementing features, see also Manager E Malicious Call Identification

Definition

This feature makes it possible to identify unwanted callers. The feature is activated in the public network, The caller's station number and name are also stored in the public network. With each incoming call, the release of the connection to the called station is delayed for a specific period of time after the caller hangs up, enabling the called station to activate this feature. Release is delayed only if the feature has been requested from the carrier or facility provider.

The MCID feature allows malicious callers to be traced (MCID, Malicious Call Identification, DSS1 LM). This feature is activated in the public network (DSS1) and can be used for DSS1 lines (not for CorNet NQ). The caller's station number and name are also stored in the public network. The called station has no direct access to the stored data. You must apply to your public network operator in order to use this feature. Appropriate authorization is required to activate the feature in the public network. The feature can be activated for $U_{P0/E}$, a/b and S_0 lines. When a call is received from the public network, this feature delays call cleardown in the direction of the called party for a specific timeout after the caller has hung up. This timeout provides the called party with an opportunity to activate the feature. However, trunk availability is somewhat reduced as a result since it takes longer until the lines become free again. Cleardown is only delayed if the feature has been requested. The MCID feature only functions for calls from the public network and not for internal calls.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
MCID	Malicious call ID is supported only on a direct trunk connection and not in tie traffic (QSig or CorNet-N).
MCID	Trunk release is delayed.

Subject	Dependency/Restriction
MCID	The "malicious call ID" class of service can be programmed for individual stations.
MCID internal to S_0	Activation is forwarded to the trunk.

11.1.15 Competition of Calls to Busy Subscribers (CCBS)

Definition

This feature sets automatic callback from an external station that is busy. When the station becomes free, the trunk attempts to set up a connection between the two stations.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CCBS	The feature must be supported by the trunk and the remote station.
CCBS	Does not function with 1TR6.
CCBS	A callback option to the networked system is generated within networked communications servers.

11.1.16 Call Hold (CH)

Definition

Users can interrupt a call in progress without releasing it. Doing so places the call on hold. Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CH	For multi-device connections only. In the case of communication servers, the connection is placed on hold in the CS. The information element is transmitted to the trunk.
CH	Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).
CH	A call can be placed on hold only in the active phase or during connection setup.

11.1.17 Three-Party Conference (3PTY)

Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the ISDN port.

On the user side, note that the other conference participants join the conference in the system, that is, only one B channel is needed for the S_0 applications bus.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V2.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
Conference	For multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk.

11.1.18 Call Waiting (CW)

Definition

When a busy party receives a call, a call waiting tone indicates that another call has arrived and may be answered. The call waiting status is transmitted to the trunk. The busy station has the option of answering the waiting call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
CW (call waiting)	For PCPBX-point-to-multipoint connections only. In the case of telecommunication systems, call waiting is executed in the CS. The information element is transmitted to the trunk.

11.1.19 Telephone Portability (TP)

Definition

This feature allows a user to park a call on the bus, unplug the telephone, plug it in again at another location on the bus, and resume the parked call. The parked station receives a message indicating that the user is porting. The user has three minutes to move the telephone.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 HiPath 3150
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V1.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
TP	For PCPBX-point-to-multipoint connections only. In the case of telecommunication systems, the external station is parked in the CS. The information element is transmitted to the trunk.
TP	The call must be resumed within 3 minutes.
TP	This feature cannot be used with services such as fax, teletex and data transmission.
TP internal to S_0	In the case of a Gigaset ISDN, this feature is used for a handover between two radio cells and for implementing the call park feature. Implementation is by the system.

11.1.20 User to User Signaling (UUS1)

Definition

This feature allows users to exchange messages during connection setup. The network transmits the messages transparently; checking only the length. Three UUS services are available:

- **UUS1**: Information is exchanged in control messages for connection setup and during connection release.
- **USS2**: Information is exchanged during the ringing phase. The number of messages is limited to two per trunk group. USS2 is available for telecommunications ports only.
- **USS3**: Information is exchanged during the active state of a connection.

HiPath 3000 currently supports only UUS1.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	x	x	x	x
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
USS1	In the case of a multi-device connection, the user must ensure that only one device transmits a message to an incoming call.
USS1	HiPath 3000 currently supports only UUS1

11.1.21 Explicit Call Transfer (ECT)

Definition

A station with two calls can connect the other two call parties to one another. One of the calls must have already been set up. Transfer before and after answering is possible.

The system supports ECT on S_0 subscriber interfaces according to ETS300367. However, only the "Implicit Invocation Variant" from the possible options is supported.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	–	–	–	–
Station feature	x	x	x	x

11.1.22 Point-to-Point Connection on the User Side

Definition

It is possible to configure an S_0 port on the user side as a point-to-point connection, for example to use a connected fax server. The port is assigned a station number that supports direct inward dialing. Call forwarding can also be programmed at this port.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 HiPath 3150
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	S_0 subscriber line			
Software requirements	V1.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	–	–	–	–
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
PtP	Only the DID, CLIP, CLIR, and AOC features are supported.

11.1.23 Programming National and International Codes for Outgoing Calls

Implementing features, see also Manager E Programming National and International codes for Outgoing Calls

Definition

The caller's station number, including the trunk access code (0, for example), the national prefix (0, for example) or the international prefix (00, for example), appears in the optiset E and optiPoint telephone display, the caller list, and dialing aids (such as Smartset).

Carriers are reached by dialing a separate national prefix (1 digit) or international prefix (2 digits). If a HiPath 3000/HiPath 5000 system provides access to more than one carrier (separate port or shared port), it is not possible to determine the carrier from which incoming calls arrive.

To represent a prefix, this feature enables you to configure the national and international access codes (national and international prefixes). A number between 0 and 9 can be used as the values for the programmable digits.

This allows calls to be answered with the help of caller lists and Smartset even when carriers are used. The existing prefixes are also used for the carriers.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	S_0 board			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later
CO feature	–	–	–	–
Station feature	x	x	x	x

Dependencies/Restrictions

Subject	Dependency/Restriction
National or international prefix	Only one national or international prefix exists for the entire system. The programmed prefix (and the carrier codes) can be up to 2 digits long.

11.1.24 Caller ID After Release (Police)

Implementing features, see also Manager E Caller ID After Release (Police)

Definition

This feature places the calling party's number in caller list 0 after the call is released.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.1.25 Call collect barring for ISDN trunks

Implementing features, see also Manager E Call Collect Barring for ISDN Trunks

Definition

This feature allows the automatic release of incoming collect calls in the network; other calls are not changed.

Not all network providers guarantee that the called party will receive the information element for identifying a collect call in the ISDN D channel protocol. Call collect barring is not possible in this case.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	Digital trunk connection			
Software requirements	V5.0 or later	V3.0 or later	V3.0 or later	V3.0 or later

11.2 U.S. ISDN (for U.S. Only)

Definition

In the United States, ISDN is offered by most local telephone companies. ISDN is an all-digital voice and data transmission technology. In contrast to analog transmissions, ISDN uses B (bearer) channels to carry voice and data traffic and a D (data) channel to carry customer call data and control signals. There are two basic types of ISDN interfaces. These interfaces are the primary rate interface (PRI) and the basic rate interface (BRI).

A PRI is for large commercial telephone systems and includes 23 B channels and a D channel. A BRI is for small or private telephony needs and consists of 2 B channels and 1 D channel. To configure these ISDN interfaces, users must know the type of HiPath 3000 system that they are configuring. The following are the ISDN interfaces that were designed to work with the HiPath 3000 system:

- BRI with the HiPath 3350 and HiPath 3300
- Both PRI and BRI with the HiPath 3550 and HiPath 3500
- PRI with the HiPath 3750 and HiPath 3700

The ISDN features are activated at the central office (CO).

11.2.1 PRI

Introduction

The HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500systems can be configured to support Primary Rate services from the public network. A primary rate interface (PRI) consists of 23 bearer (B) channels and 1 data (D) channel. Each channel supports 64 Kbps of bandwidth.

The HiPath 3750 and HiPath 3700 support a maximum of five T1 interfaces (TMST1) that can be configured as primary rate interfaces. A Channel Service Unit (CSU) is required for each interface connected to the public network. (Siemens ICN supports certain models of CSU that have been tested with the HiPath 3000. Contact your Siemens ICN representative for the model numbers). The HiPath 3750 and HiPath 3700 support a maximum of four Call by Call (CBC) groups. Each group can be configured with a maximum of eight CBC trunk groups.

The HiPath 3550 and HiPath 3500 support one T1 interface (TST1 module) that can be configured as a primary rate interface. A CSU is required for each interface connected to the public network. The HiPath 3550 and HiPath 3500 support a maximum of one CBC group. The group can also be configured with a maximum of eight CBC trunk groups. Typically, the entire T1 span is placed in a single trunk group, but depending on the application, the primary rate channels can be separated into discrete route groups. This may be required for applications where a portion of the channels can be separated out for non-system data applications.

A span or spans must be selected as the reference interface for the Central Office. A hierarchical table is provided for assigning four reference-clock points. If the primary clock source fails, the next clock source specified is used as the reference. When the primary clock source returns, the system automatically resynchronizes to this clock. A maximum of four reference clocks can be defined per system.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	–
Hardware requirements	DIU2U	TMST1	TST1	–
Number of T1 modules per system	5	5	1	–
Number of CBC groups per system	4	4	1	–
Number of trunk groups per CBC group	8	8	8	–

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Software requirements	V5.0 or later	V1.0 or later		–

Depending on the PRI provider's requirements, users need to configure some or all of the following for PRI setup:

- Signal, protocol, and emulation type
- Frame/line/encoding
- B channel allocation mode and identifier
- Number of B channels
- Trunk group calling service

For networking with PRI, customers can use either tie trunks or the public-switched telephone network.

Protocol type allows customers to select the interface between the HiPath 3750, HiPath 3550, HiPath 3700 or HiPath 3500 and the PRI provider. Protocols are different for local exchange carriers (LECs) and for inter-exchange carriers (IECs). Customers might prefer an IEC, for example, if they want to place calls on a tie trunk using station numbers without going through the local exchange.

Customers can choose a different carrier and protocol for each PRI span. The HiPath 3000 systems support seven commonly used LEC protocols and seven commonly used IEC protocols. Table 11-1 and Table 11-2 on page 11-32 show the protocols available for each slot.

LEC Protocols

Table 11-1 Supported LEC Protocols

LEC Carrier	Switch	Protocol
AT&T	5ESS	Custom
AT&T	5ESS	NI-2
Bell Canada	DMS100	Custom
GTE	GTT5	NI-2
Nortel	DMS100	Custom
Siemens	EWSD	Custom
Siemens	EWSD	NI-2

IEC Protocols

Tabelle 11-2 Supported IEC Protocols

IEC Carrier	Switch	Protocol
AT&T	4ESS	Custom
MCI	DMS250	AT&T 4ESS emulation
MCI	DEX600	AT&T 4ESS emulation
Sprint	DMS250	AT&T 4ESS emulation
Westinghouse	DMS250	AT&T 4ESS emulation
GSA	DMS250	DMS250
GSA FTS 2000	5ESS	5ESS

Emulation type is determined by the protocol. Users need to select the emulation type that matches the ISDN service they have ordered: Super Frame (SF) or Extended Super Frame (ESF).

The data format for SF emulation is inverted high-level data link control (HDLC); the data format for ESF is normal HDLC.

Frame/line/encoding allows customers to select the type of encoding used on the D channel. The choices are normal or inverted. Normal is the default. The type of frame and line encoding depends on the protocol. HiPath 3550 and HiPath 3500 automatically set the correct type of frame and line encoding according to the protocol.

B channel allocation mode and identifier allows customers to select the system method of finding an available B channel when needed. The choices are high and low. High begins searching at the highest-numbered B channel of the highest-numbered T1 span in the PRI trunk group and continues in descending order. Low begins searching at the lowest-numbered B channel of the lowest-numbered T1 span in the PRI trunk group and continues in ascending order.

Select the opposite mode from that used by the CO; this will avoid collisions when both the CO and the HiPath 3000 are trying to seize a channel.

Number of B channels allows users to enter the number of B channels for the system, so that the system knows where to begin searching for channels to allocate. The number entered here depends on the number of B channels that the customer has ordered.

Trunk group calling service allows users to select the type of service for each trunk group. The HiPath 3550, HiPath 3350, HiPath 3500and HiPath 3300 support 36 types of trunk group service. Customers select the type of service according to the service ordered from the ISDN provider.

If you are unsure the trunk group calling service, consult the ISDN provider for more information.

The following tables outline the voice and data services available through the public network providers in the North American market.

Table 11-3 Inter-Exchange (IEC) Protocol Calling Services

	ATT 4ESS	**MCI DMS250/ MCI DEX600**	**SPRINT DMS250**	**Westing. DMS250**	**FTS2000 DMS/5ESS**
In-WATS (800)	Megacom 800-TFM	MCI 800	ULTRA 800	WICN-In-WATS	N/A
Out-WATS	Megacom	MCI Prism-WATS	SPR Ultra WATS	WICN-Out-WATS	N/A
In-WATS (900)	Multiquest	MC!/900	N/A	N/A	N/A
Intl IN-WATS	Inter-800	MCI 800	N/A	N/A	N/A
PVN	AT&T SDDN	MCI VN-VS	SPRINT-VPN	N/A	N/A
Intl VPN	AT&T SDN-GSDN	N/A	SPRINT-VPN	N/A	N/A
SDS 56	Accu-SDS	No	Accu-SDS	Accu-SDS	N/A
SDS 94-c/r	Accu-SDS	No	Accu-SDS	Accu-SDS	N/A

Table 11-4 Local Exchange (LEC) Protocol Calling Services

	AT&T 5ESS/ Siemens EWSD	Nortel DMS100 Bell Cnd DMS100	Generic NI2 Siemens NI2 AT&T 5ESS NI2
In-WATS (800)	Megacom	DMS100 In-WATS	NI2 InWATS
Out-WATS	Megacom	DMS100 Out-WATS	NI2 OutWATS
In WATS (900)	N/A	N/A	N/A
Intl InWATS (800)	N/A	N/A	N/A
PVN	N/A	DMS100 PV	N/A
Multiband OutWATS	Megacom	DMS100 Out-WATS	NI2 OutWATS
Access to LEC operator	No	No	No
Access to default IEC operator	No	No	No
Equal access to IEC Long Distance services	Megacom	DMS100 Out-WATS	NI2 OutWATS
Basic CO access	No	No	No
Access to IEC operator	No	No	No
SDS-56	No	No	No
SDS-64 c/r	No	No	No

11.2.2 BRI

Introduction

To set up the HiPath 3000 for BRI ISDN, users must receive service profile identifier designator (SPID) numbers from the telephone company (telco). SPID numbers identify the type of ISDN service and the variety of features that customers receive. In addition, to allow direct access to specific devices, some BRI interfaces can be set up with CACH EKTS. Depending on the central office (CO) switch type, users have to configure either call appearance identification (CAID) values (also known as CACH values) or phantom direct inward dialing (PDID) numbers for all devices that make external calls.

Depending on the central office (CO) protocol selected, users need to configure some or all of the following parameters for BRI setup:

- CO protocol
- SPID administration
- CAID administration (AT&T or EWSD)
- PDID administration (DMS100)
- Feature identification number (FIN) for message waiting
- CO Features (Transfer/Conference/Drop)
- Feature identification number (FIN) for Transfer, Conference and Drop
- CACH EKTS flag (AT&T or EWSD)

The CO protocol is the interface between the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 and the CO of the BRI provider. Select the protocol that the BRI provider uses. The following CO protocols are supported:

- AT&T NI1
- AT&T Custom
- Siemens NI1
- Nortel NI1

Nortel NI1 requires PDID values instead of CAID values; for more information refer to PDID administration on Page 11-37.

If you are unsure of the CO protocol, consult the ISDN provider.

SPID administration allows customers to set service profile identification designator values. Each BRI line is assigned two SPID values. The HiPath 3000 systems support up to eight SPIDs. The SPID values can be assigned to any combination of digital stations or digital data terminals and could be required for some data terminals. SPID numbers are used by the CO to identify each terminal for features such as message waiting, call transfer, and conference. Customers must configure the numbers in sequence according to the order of the stations in the system. A primary directory number is assigned to each SPID address number.

Consult the BRI provider for specific SPID number information.

CAID administration allows customers to set call appearance identification values when the CO switch type is AT&T or EWSD. CAID values are one or two digits that are assigned by the central office to the primary and secondary system numbers. A CAID value represents a talk path from a voice station or a data terminal to a BRI channel. At least one CAID must be programmed for each extension so that external calls can be received and answered directly without going through the switch. Each device in the system can have up to four CAID values.

Multiple CAID values must be assigned to a station to allow for external telephone functions, such as to answer camp-on calls and conference calls. CAID values are used to simulate multiple call handling at a single desktop station. That is, each CAID number simulates an additional extension (a call appearance), but the additional extension numbers do not actually represent outside trunk lines.

Some COs do not assign CAID values to ISDN data terminals. If you do not know the CAID numbers assigned to the system, consult the BRI provider.

PDID administration allows customers to set phantom direct inward dialing identification numbers (PDIDs). PDID numbers take the place of CAID values in the Nortel DMS100 NI1 CO only. Customers can assign PDID numbers to all voice and data terminals in the system. This allows incoming calls to be routed to the specified station or ISDN terminal without attendant intervention.

The PDID number can be from 1 to 7 digits in length, corresponding to a traditional seven-digit phone number.

PDIDs or directory numbers (DNs) are assigned by the ISDN provider.

FIN for message waiting allows users to set the feature identification number (FIN) for the BRI message waiting feature provided by the LEC. The LEC assigns FIN values to associate the feature with specific HiPath 3550, HiPath 3350, HiPath 3500 or HiPath 3300 stations; contact the LEC to obtain the FIN values for the stations.

The message waiting FIN value can only be assigned to stations with primary directory numbers.

With FIN for message waiting, customers must enter a FIN value for each station. Every station must have a FIN value assigned; however, each station can have the same number.

CO features (Transfer/Conference/Drop) allows the customer to enable the CO features Transfer, Conference, and Drop.

FIN for Transfer, Conference and Drop allows customers to set the feature identification numbers (FIN) for the BRI Transfer, Conference, and Drop features provided by the LEC in the case of NI1 (AT&T NI1, Siemens NI1, or Nortel NI1). The FIN must be the same for all the BRI interfaces; contact the LEC to obtain the FIN values for these features.

CACH EKTS flag allows customers to indicate which of the BRI interfaces are configured within the LEC as CACH EKTS.

CACH is one of the methods used to have BRI emulate an analog hunt. Although there is a CACH setting in the NT DMS, it does not react in the same manner; the CACH setting in the DMS does not allow the sharing of DNs. Administration of CACH values in the HiPath 3000 is referred to as CAID (Call Appearance IDentification) administration.

11.3 U.S. ISDN Features (for U.S. Only)

11.3.1 Multi-Device Connections

Definition

An ISDN multi-device connection enables users to connect multiple ISDN terminals (such as Internet and ISDN video devices) on an ISDN S0 applications bus. You can use the direct inward dialing (DID) number field to assign multiple subscriber numbers (MSNs) that will uniquely identify the devices.

Related Topics

- Section 11.3.10, “Multiple Subscriber Number (MSN)” on page 11-47

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	STMD3 or ISDN adapter	STMD8 or ISDN adapter	STLS4 STLS4R or ISDN adapter	STLS4 STLS4R or ISDN adapter
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.
Trunk groups with PP and PMR	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups, and Prime Line must be deactivated.

11.3.2 Call-By-Call Service Selection

Definition

Call-by-Call service selection (CBC) lets the user select a different type of service for each channel, such as INWATS channels and some OUTWATS channels within the same trunk group.

The following are the four main features provided through call-by-call (CBC):

- Foreign Exchange Non-ISDN Facility
  This trunk type enables users to originate or terminate calls as if there was a local CS in the foreign (remote) central exchange office. Access to the foreign exchange (FX) is possible via LCR or trunk group access codes.
- Tie Trunk Non-ISDN Facility
  This trunk type enables users to connect to a privately leased analog Tie Trunk network. Access for originating calls is possible through LCR. Terminating Tie Trunk calls are routed according to the called party number (CdPn).
- OUTWATS-Facility
  This feature allows customers to place calls to certain areas at special lower rates.
- INWATS-Facility
  This feature supports the 800 area code that provides callers toll-free access to the terminating party. This is a terminating only service.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	
Hardware requirements	–	–	–	
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

Dependencies/Restrictions

Subject	Dependency/Restriction
Simulated Facility Groups (SFG)	FX and Tie Trunk incoming and outgoing calls require an SFG access code, which is assigned by the telephone company at the time of subscription.

11.3.3 Dedicated (Pre-Provisioned) Service Selection

This feature simplifies the service ordering process by supplying ordering codes that tell the central office how to configure the HiPath 3000.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.4 Transfer

Definition

This feature allows calls to be transferred the same as non-ISDN calls.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.5 Camp-On

Definition

This feature allows calls to be camped-on until the busy line is free. Once the line is free, the user call is signaled through.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.6 Conference Call

Definition

This feature allows multiple callers to communicate simultaneously.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.7 Equal Access

Definition

This feature complies with the FCC requirement to provide equal access to alternate carriers.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.8 Special Access Selection

Definition

With this feature users can select specific access codes. HiPath 3000 systems support the following four options:

- Local Exchange Carrier (LEC) Operator Access

  The system routes calls through the PRI to the network after the user dials 0 to connect to the LEC operator.

- Inter-exchange Carrier (IEC) Operator Access

  After the user dials an operator access code, a carrier identification code (CIC), and a 0, the system routes the call through the PRI and to the network, connecting the call to the IEC operator.

- Operator-Assisted Credit Card Call Access

  This feature routes PRI calls to the network using an operator access code, a 0 or 01, and a called party number (CdPn), allowing operator assisted calls with a calling card.

- N11 Access

  Most commonly used for 911 access, this feature routes PRI calls to the network via an operator access code and N11, where N is any digit from 1 to 9.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.9 Direct Inward Dialing (DID)

Definition

The basic electronic key telephone system (EKTS) supports the sharing of directory numbers over several ISDN lines, allowing for direct inward dialing (DID).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware require-ments	STMD3	STMD8	STLS4	STLS4
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
DID	The extensions in the CS must at the very least be outward restricted and direct inward dialing must be permitted.

11.3.10 Multiple Subscriber Number (MSN)

Definition

Multiple subscriber numbers (MSNs) are used to identify ISDN terminals connected to an S0 bus in the HiPath 3000 systems. MSN are 11 digits in length. They are entered in the DID number field in system administration.

You can assign each ISDN terminal one or two MSNs, depending on the application. A device requiring 64 Kbps of bandwidth must be assigned one MSN; a device requiring 128 Kbps of bandwidth must be assigned two MSNs. The call number associated with the MSN is dialed to reach the device during an internal data or voice transaction.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	STMD3 or ISDN adapter	STMD8 or ISDN adapter	STLS4 STLS4R or ISDN adapter	STLS4 STLS4R or ISDN adapter
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
MSN	MSNs are assigned in the DID number field for each ISDN terminal. This number is used as the internal SPID for the device.
Primary Directory Number (PDN)	The PDN associated with public network BRI link must be entered in the DID field for the ISDN terminal to initiate calls to the external network.
MSN for internal use only	Enter a seven-digit number not associated with the PDN in the DID field.
External SPIDs	The public network SPIDs for the ISDN links can be assigned to any station in the system.
B channels	The number of external data calls is limited to the number of B channels installed in the system.
Access	B channels are dedicated to the specific ISDN terminal and should be placed in a separate trunk group to ensure access if more than one BRI trunk is installed.

Subject	Dependency/Restriction
MSN	If the MSN for a Setup is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use (optiset E or optiPoint 500), the Setup is rejected. If an MSN is too long, a right-justified evaluation of the digits is performed.

11.3.11 Calling Line Identification Presentation

Definition

The calling line identification presentation (CLIP) feature transmits the caller's own station number to the interface called. The station number can be displayed on suitable telephones. The public network must support station number transmission.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	optiset E or optiPoint 500 telephone with display			
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.12 Call Forwarding (CF)

Definition

All calls for the ISDN port can be forwarded. Three different types of call forwarding (CF) are available:

- Call forwarding unconditional (CFU)

  All calls for the ISDN port are immediately forwarded to any port.

- Call forwarding busy (CFB)

  Same as CFU but only if the line is busy.

- Call forwarding no reply (CFNR)

  Same as CFU but only if the call is not answered within a specified period (15 s).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
CF	Forwarding is always performed for the first basic access, necessitating that the first S_0 port is present in the system.
CF	This service is activated telephony, speech, and 3.1 kHz audio only.
Internal to S_0	Internal stations support CFU only (to prevent conflicts with call management).

11.3.13 Call Hold (CH)

Definition

Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
CH	For multi-device connections only. In the case of PABXs, the connection is placed on hold in the CS. The information element is transmitted to the trunk.
CH	Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).
CH	A call can be placed on hold only in the active phase or during connection setup.

11.3.14 Three-Party Service

Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the ISDN port.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
3PTY	For multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk.
3PTY internal to S_0	The other conference participants are connected in the system; therefore, only one channel is required to the S_0 bus.

11.3.15 Call Waiting (CW)

Definition

If a station is busy and a second call is pending, the busy station receives call waiting. The call waiting (CW) status is transmitted to the trunk. The busy station has the option of answering the waiting call.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
CW	For PCPBX-point-to-multipoint connections only. In the case of PABXs, call waiting is executed in the CS. The information element is transmitted to the trunk.

11.3.16 Connected Line Identification Presentation and Restriction

Definition

The Connected Line Identification (COLI) Presentation and Restriction feature provides the user with a display of the number called, or it restricts the user's network-provided number from being displayed to the calling party.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.17 Dialed Number Identification Service

Definition

The Dialed Number Identification Service (DNIS) feature translates an external user's CO LEC/ IEC number to a customer-defined DNIS number.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.18 B Channel Selection

Definition

This feature searches the low-low B channel selection algorithm for an available B channel, starting each new search at the lowest numbered B channel of the lowest numbered DS1 facility in the PRI trunk group, and it continues in ascending order. In addition, this feature searches the high-high B channel selection algorithm for an available B channel, starting each new search at the highest numbered B channel of the highest numbered DS1 facility in the PRI trunk group, and it continues in descending order.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.19 Originating B Channel Selection Implementation

Definition

For originating calls, this feature specifies a preferred B channel to the CO. If the preferred B channel is not available, the CO responds with an alternate B channel.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.20 Terminating B Channel Selection

Definition

For terminating calls, the CO specifies the B channel it has selected. If the HiPath 3000 determines that the requested B channel is not available and that it is not exclusive, the HiPath 3000 responds with an alternate B channel.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

Dependencies/Restrictions

Subject	Dependency/Restriction
No appropriate B-channel	If the HiPath 3000 cannot accept the call on an appropriate B channel, it rejects the call with cause value #34, *channel congestion*, or cause value #44, *requested channel not available*.

11.3.21 B Channel Cut-Through Operation Mode

Definition

North American ISDN PRI most often requires that the B channel voice path cut-through to the network before connecting. This cut-through operation is different than most other parts of the world. For this reason, the ISDN service providers often provide in-band tones or announcements that require a cut-through of the voice path.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.22 Digital Keypad to DTMF Conversion on PRI

Definition

This feature converts digital keypad information to dual-tone multifrequency (DTMF) signals and sends the signals in-band over the PRI B channel.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.23 En-Bloc Dialing

Definition

With this feature, the HiPath 3000 sends and receives blocks of data (complete telephone numbers) to and from the public network. The numbers are stored in the system and not forwarded to the network until the user finishes dialing.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.24 Data Calls

Definition

This feature transfers data over the PRI. Facility type and LEC/IEC calling service influence this service. Refer to the specific vendor for specific requirements for PRI data transmission.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	

11.3.25 Basic Electronic Key Telephone System

Definition

Electronic Key Telephone System (EKTS) is a National ISDN-1 standard that supports call appearances according to the directory number. This group-sharing capability associates a telephone on any interface with a particular directory number. EKTS enables sharing of telephone features like call management, caller ID, conference calling, and call forwarding.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

11.3.26 Call Appearance Call Handling Electronic Key Telephone System

Definition

Call Appearance Call Handling Electronic Key Telephone System (CACH EKTS) simulates multiple call handling at a single desktop station. Users can receive multiple calls for the same directory on several ISDN lines using one of the call appearance IDs that is assigned to the directory number. With this feature, the CO can offer a call on multiple interfaces because the directory number call appearances are shared. This allows the HiPath 3000 to respond to the call with an idle interface. CACH is called call appearance identification (CAID) in the HiPath 3000.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
Call appearance identification (CAID) values	In a basic EKTS system CAID values are not supported. The AT&T 5E and Siemens EWSD central offices support the CAID format. The Northern Telcom central offices use phantom DID numbers instead of CAID values.

11.3.27 Called and Calling Party Display

Definition

With called and calling party number display services like dialed number identification service (DNIS) and automatic number identification (ANI) are provided by the network. DNIS is for T1 digital trunks and ANI is for PRI trunks. The calling party number (CPN) is displayed on a suitable display telephone.

With this feature, the system performs the following functions:

1. Checks the calling number against any ANI or DNIS table entries
2. Translates the digits into an account number, customer name, or company name
3. Routes the call
4. Displays the information on the telephone display

Users can override this feature system-wide.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	–	–	–	–
Software requirements	V5.0 or later	V1.0 or later	V1.0 or later	V1.0 or later

Dependencies/Restrictions

Subject	Dependency/Restriction
T1 Trunks	T1 trunks support DTMF signaling only.
Protocols	The protocols for processing ANI and DNIS digits depends on the service and the carrier.

11.3.28 Connected Party Display

Definition

For users calling from a HiPath 3000 telephone, this feature displays the connecting party number through the BRI if the public network provides it. If the connected party number information is restricted, the HiPath 3000 does not forward or use the connected party number for any purpose.

Users can override this feature system-wide.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in			**x**	**x**
Hardware requirements	–	–	–	–
Software requirements			V1.0 or later	V1.0 or later

11.3.29 Message Waiting

Definition

This feature indicates that there is a message waiting through one of the following indicators:

- Displaying a message on optiset E and optiPoint 500 telephones with display
- Signaling with a flashing LED
- After lifting the handset for analog telephones

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in			**x**	**x**
Hardware requirements	–	–	–	–
Software requirements			V1.0 or later	V1.0 or later

11.3.30 Internal Voice Mail

Definition

When the HiPath 3000 systems forward a call arriving over the ISDN/Central Office interface to the local voice mail system, the control information specifies where the forwarded call originated. The system alerts users that they have a message waiting through the following methods:

- Displaying a message on optiset E and optiPoint 500 telephones with display
- Signaling with a flashing LED
- Picking up the handset

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in			**x**	**x**
Hardware requirements	–	–	–	–
Software requirements			V1.0 or later	V1.0 or later

12 Features via LAN

12.1 SNMP Functionality

Definition

As part of the TCP/IP protocol family, the Simple Network Management Protocol (SNMP) is an easy-to-use platform for performing management tasks in the HiPath 3000/HiPath 5000 system software. SNMP is used as a kind of management agent in HiPath 3000/HiPath 5000, making it possible to monitor and administer LAN components (including HiPath 3000/HiPath 5000 itself) from a central location. This involves

- addressing HiPath 3000/HiPath 5000 via the TCP/IP protocol family.
- allowing external management applications, such as HiPath Fault Management, HP Open View and IBM Tivoli, to access data in HiPath 3000/HiPath 5000 (using SNMP messages, such as GET, SET, TRAP)
- implementing remote maintenance tasks (online port status, enabling and disabling ports, determining free ports)
- transmitting service-related class B errors
- visualizing the operating status of HiPath 3000/HiPath 5000 systems

Overview of SNMP Functions

- Management Information Bases (MIBs)

  MIBs define the volume of data that can be administered via SNMP. They are data models that describe the network elements to be administered in a very specific form.

  HiPath 3000/HiPath 5000 supports

  – standard MIB II (according to the RFC1213 Internet standard), which provides Internet and router functions;

  – parts of the RMON 1/2 standard MIBs (RFC 1757, RFC 2021);
  The following are supported here:

    – Error history

    – Trap configuration

    – TFTP configuration

    – General system information

  - a user-specific MIB that processes HiPath-specific statistic data (feature counters) and internal error messages (error history), covering the following areas:
    - ControlGroup – status variables, general configuration, supplementary TFTP configuration data
    - SystemInfoGroup – system configuration and status
    - StatisticsGroup – statistic data on features
    - ErrorHistoryGroup – Error history in HiPath format
      Error messages are forwarded in the form of SNMP traps via the LAN to a specific external management application. The SNMP traps form the error history data structure (time stamp, error class, error description).

  These components use the IP protocol according to OSI layer 3 and the UDP protocol according to layer 4. The SNMP protocol stack uses port numbers. The system supports the SNMP protocol version 1.0.

- SNMP Messages

  The following commands control SNMP messages for communication between the SNMP management agent (HiPath 3000/HiPath 5000) and external applications:

  - GET – retrieve data from agent
  - GET NEXT – read out data sequentially
  - SET – write data
  - TRAP – alarm messages issued by the SNMP agent

  There is an integrated mechanism for generating SNMP traps in the event of class B errors. The SNMP management agent evaluates the error messages. In the case of defined errors, it generates specific traps and transmits them in the form of IP data records to a configurable IP address (a total of five SNMP V1.0-compatible applications are supported, including HP Open View Network Node Manager).

12.2 Administering **HiPath 3000/HiPath 5000 via the LAN Interface**

Definition

You can administer HiPath 3000/HiPath 5000 via a computer connected to the LAN.

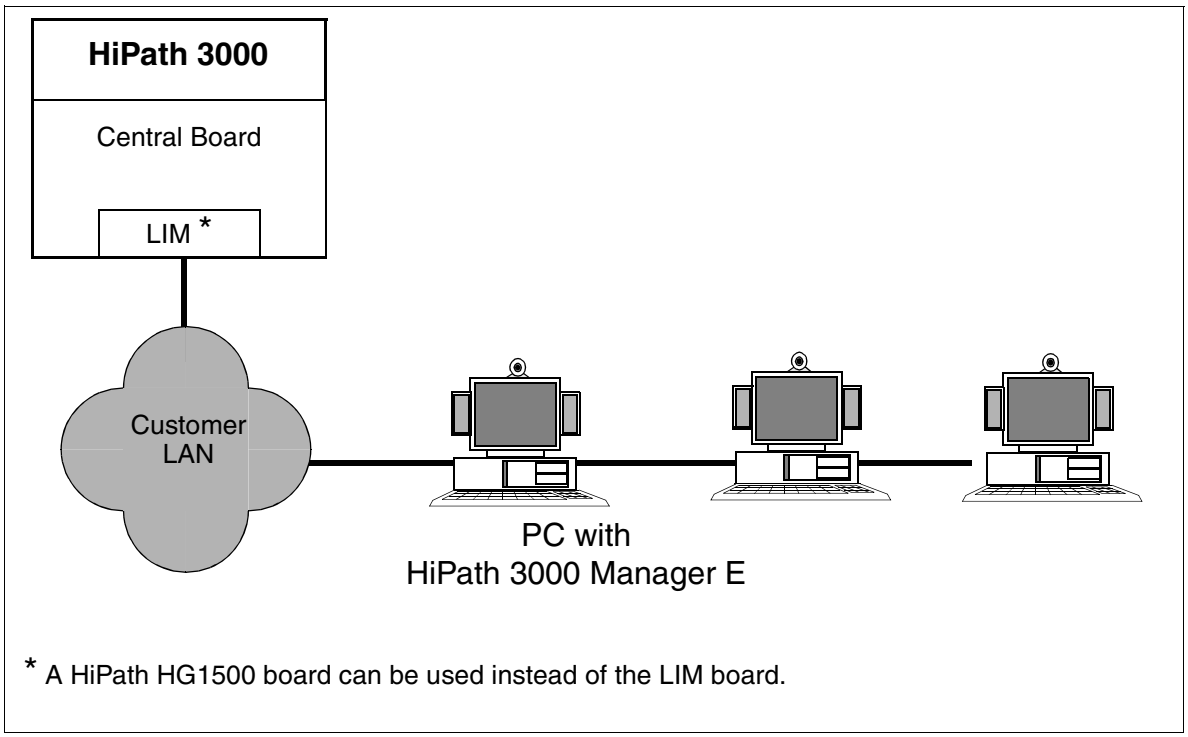


Figure 12-1 Example: HiPath 3000 Administration via the LAN Interface

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	LIMS or HiPath HG1500 board	LIM or HiPath HG1500 board		
Software requirements	V5.0	V1.2	V1.2	V1.2

12.3 CSTA via IP

Definition

The Transmission Control Protocol (TCP) is used for CSTA via IP. There is a fixed link connection detecting and automatically correcting lost data packets over a permanent connection.

A total of three CSTA clients or applications can connect to HiPath 3000/HiPath 5000 simultaneously via the LAN. This means that they can simultaneously use CSTA via IP. Restrictions may apply to applications that use certain services. For example, only one application at a time can start the message registration function.

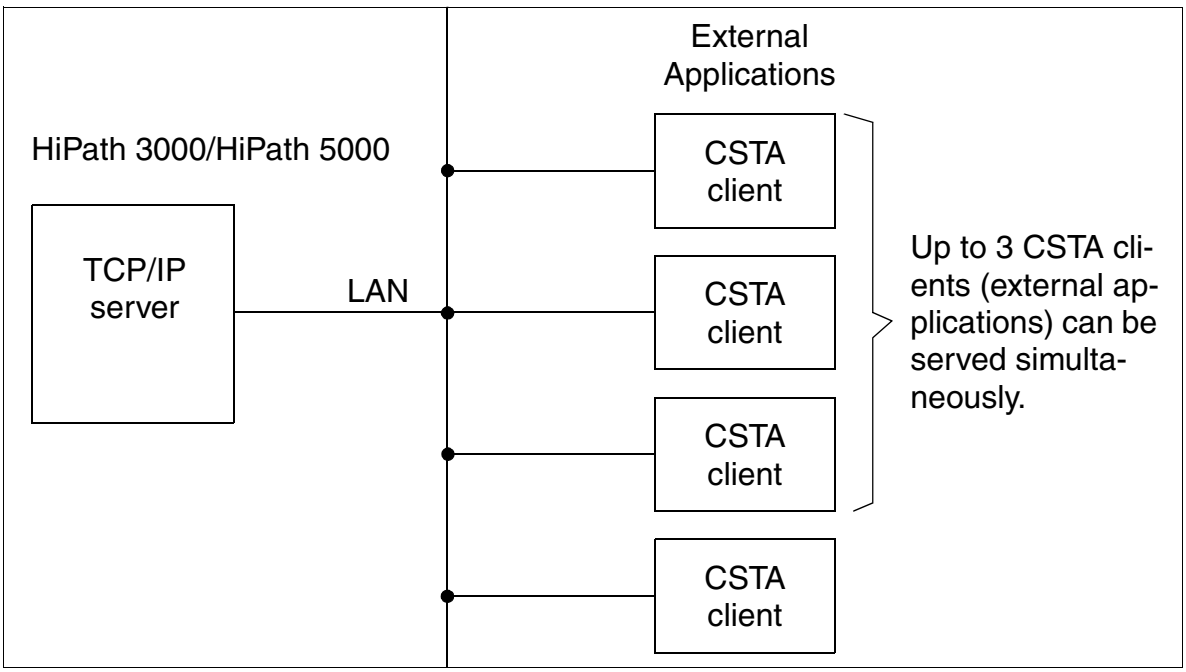


Figure 12-2 HiPath 3000/HiPath 5000 - CSTA via IP

For an external application to address HiPath 3000/HiPath 5000, it must know the TCP port (7001) of the TCP/IP server implemented in HiPath 3000/HiPath 5000 as well as the IP address.

Data packets sent from an application to HiPath 3000/HiPath 5000 -- that is, packets containing the HiPath IP address, TCP port 7001, and protocol type TCP -- are accepted for further processing.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	LIMS or HiPath HG1500 board	LIM or HiPath HG1500 board		
Software requirements	V5.0	V1.2	V1.2	V1.2

12.4 Call Detail Recording Central (CDRC) via IP

Definition

In HiPath 3000/HiPath 5000, you can start up the central call data output function only once, which means that it is available to only one application at a time. Three different modes exist to support the various requirements of the different applications.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	LIMS or HiPath HG15 00 board	LIM or HiPath HG1500 board		
Software requirements	V5.0	V1.2	V1.2	V1.2

12.4.1 TFTP Client in **HiPath 3000/HiPath 5000**

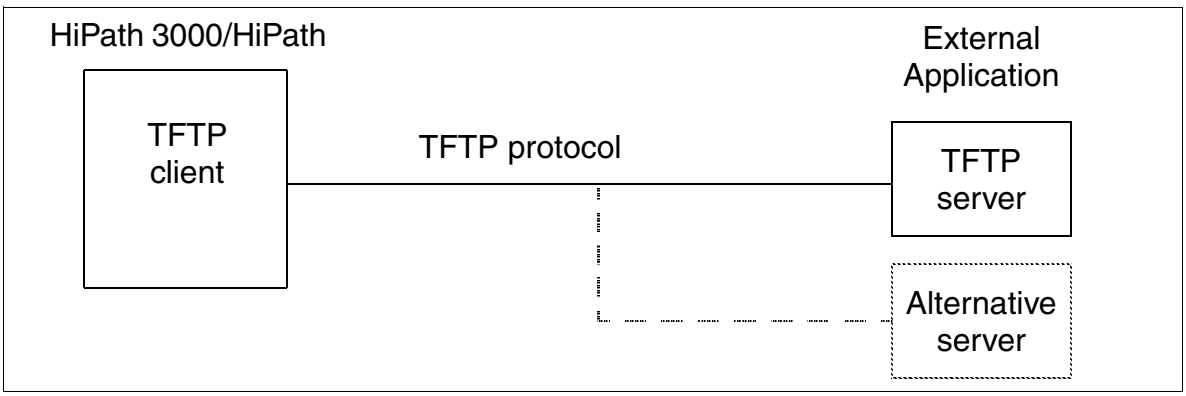


Figure 12-3 CDRC via IP - TFTP Client in HiPath 3000/HiPath 5000

Controlled by a programmable timer and a fixed threshold value determining the call data buffer capacity (around 80 percent of the call data buffer full), the TFTP client (HiPath 3000/HiPath 5000) sends call data to the TFTP server (external application). If the system cannot set up a connection to the TFTP server, it addresses an alternative server. If this server is also unavailable, it outputs an SNMP trap or error message (“Unable to output data”). The system tries to set up another connection every 60 seconds. A call data buffer overflow causes an error message to be entered in the error history file.

Use HiPath 3000 Manager E to configure the TFTP server and timer IP addresses.

12.4.2 TCP Client in HiPath 3000/HiPath 5000

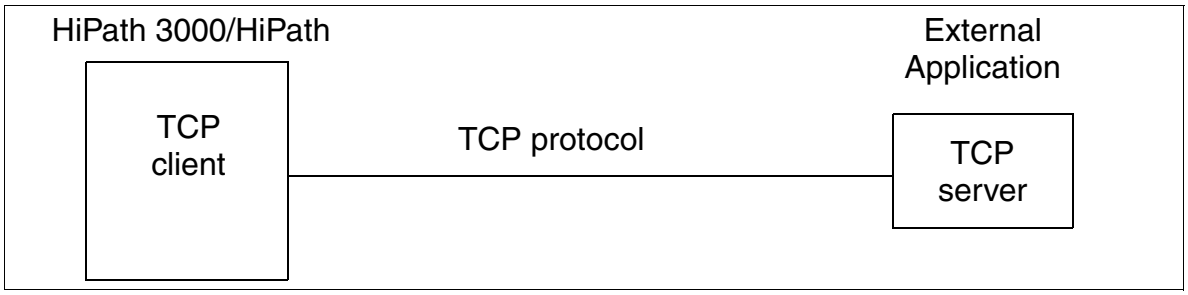


Figure 12-4 CDRC via IP - TCP Client in HiPath 3000/HiPath 5000

When call data records accumulate, the TCP client (HiPath 3000/HiPath 5000) sets up a TCP/IP connection to an external TCP server (external application) and transmits the data. The connection remains active continuously so that the system can send any further accumulated data, transmitting each data record separately. Use HiPath 3000 Manager E to configure the server's TCP/IP address (TCP port and IP address).

12.4.3 TFTP Server in HiPath 3000/HiPath 5000

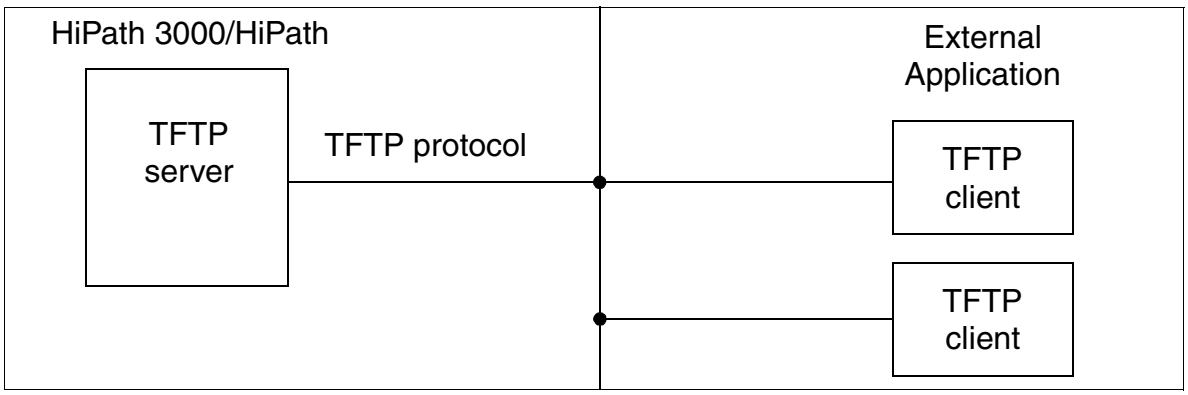


Figure 12-5 CDRC via IP - TFTP Client in HiPath 3000/HiPath 5000

The external application (TFTP client) requests output of the call data records. To do this, the application must set up a connection and indicate the service (GET gez.txt), after which it receives all accumulated call data records. It releases the connection after the transfer.
Note: The IP address of the TFTP client must be entered in the firewall and the "call charges" application flag set.

The application's request for call data can be controlled automatically or using an SNMP trap (see Section 12.1). HiPath 3000/HiPath 5000 sends the SNMP trap ("data available") to the external application, generating the trap using a programmable threshold value determining the call data buffer capacity (0 to 80 percent of the call data buffer full). Use HiPath 3000 Manager E to configure the threshold value.

12.5 Remote Administration of HiPath 3000 via PPP

Definition

You can administer multiple HiPath 3000 systems from a central service center via PPP (point-to-point protocol). Each HiPath 3000 is addressed via its PSTN (public switching telephone network) interface.

You must enter a router call number (DID number) for every PSTN interface in the service center for external access to HiPath 3000. This number is not the station number previously used for administration via an integrated digital modem (B channel) or integrated analog modem (IMODC).

For analog modem there are the following specific values/parameters (for IMODC): Baud rate: 9600 baud, 19200 baud, 38400 baud or 57600 baud.

You can establish a connection between the service center and HiPath 3000 via the integrated digital modem (B channel) or the integrated analog modem (IMODC). The point-to-point protocol (PPP) is used in both cases for data exchange.

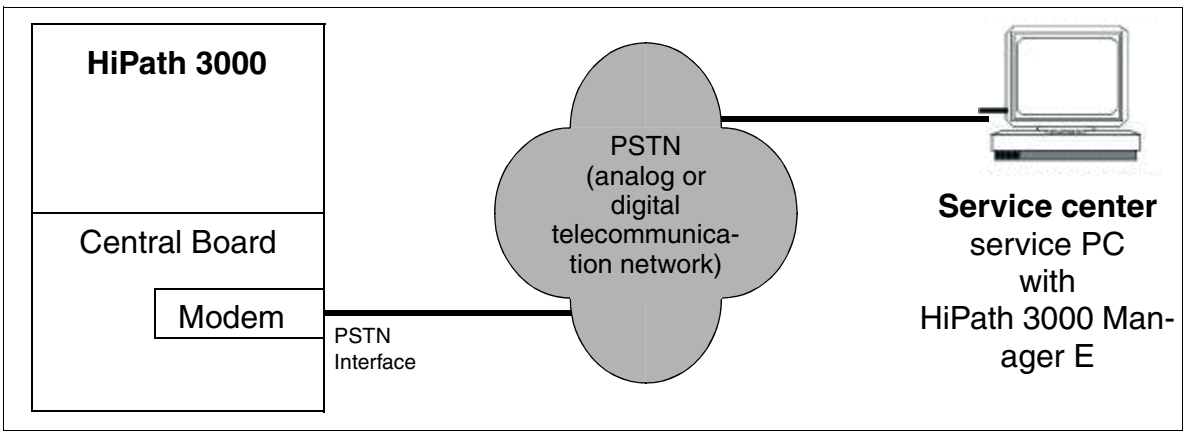


Figure 12-6 Remote Administration of HiPath 3000 via PPP

If the connection is established via callback, HiPath 3000 first of all denies a connection request from the service center (HiPath 3000 Manager E). A callback is then set up to the service center's calling party number transferred via the PSTN connection's D channel.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	CBSAP	CBCPR	CBCC or CBRC	CBCC or CBRC
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

12.6 Administration of Plus Products via PPP

Definition

You can use HiPath 3000 to administer Plus Products from a central service center. HiPath 3000 only provide the transmission medium for this. The actual Plus Product administration is performed via special software programs, such as pcANYWHERE.

HiPath 3000 is addressed from the service center via its PSTN (public switching telephone network) interface. The Plus Products connected to a LAN can be reached via the HiPath 3000's LAN interface (LIM). In this case, HiPath 3000 acts like a router.

You must enter a router call number (DID number) for every PSTN interface in the service center for external access to HiPath 3000.

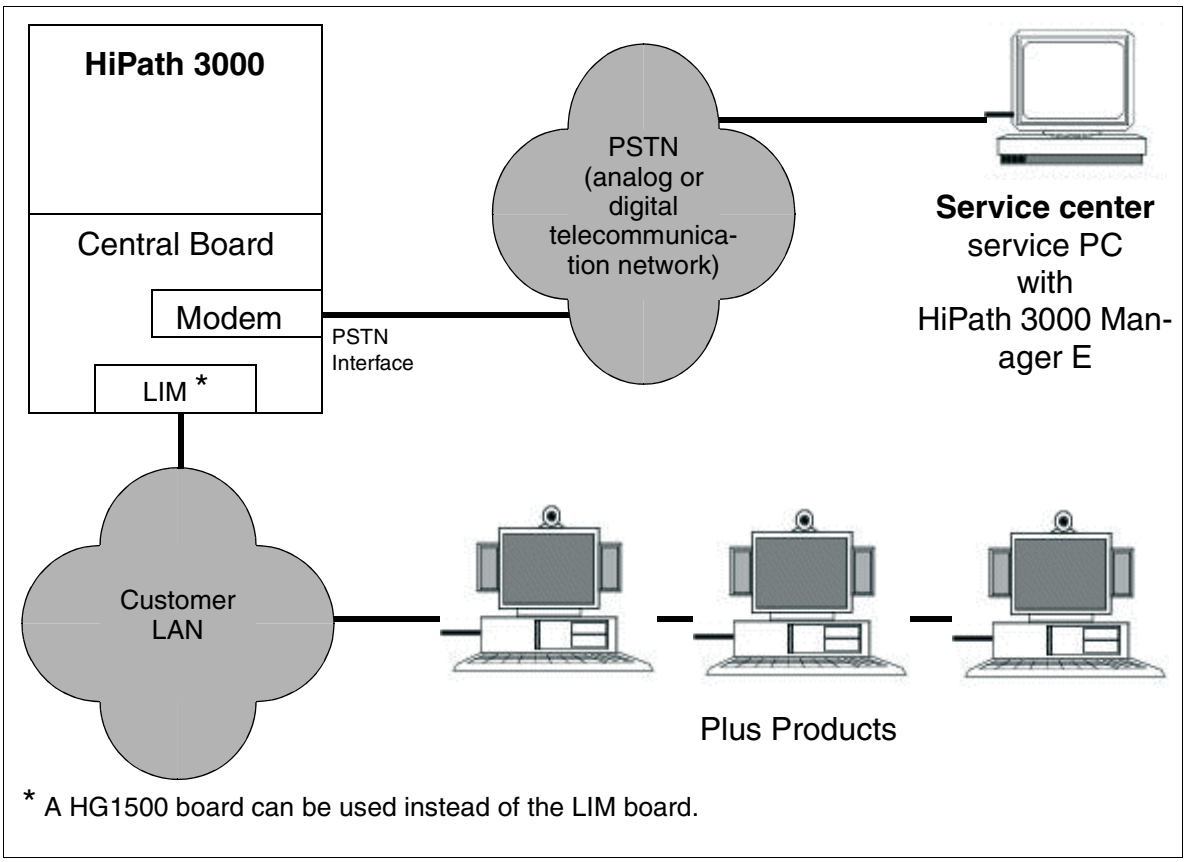


Figure 12-7 Example: Remote Administration of Plus Products via PPP

You can establish a connection between the Plus Product and the service center via the integrated digital modem (B channel) or the integrated analog modem (IMODC). The point-to-point protocol (PPP) is used in both cases for data exchange.

If a Plus Product supports SNMP traps, these can be transferred from the HiPath 3000 to the service center.

Access Mechanism

A list of up to twenty remote structures controls access from the service center to the customer LAN and vice versa. Each remote structure contains the following information:

- The IP address of the service center (= PSTN partner in the service center) for setting up connections from the customer LAN to the service center and for the automatic transmission of error messages (SNMP traps).
- The DID number (part of the numbering plans) for direct identification of this remote structure.
- Up to five PSTN remote numbers marked as incoming (for identifying the remote structure - when dialing the router call number) and/or outgoing (for use as callback address).
- Short hold mode yes/no
  - If "Short hold = yes" is selected, an inactive PSTN connection is set up after a configured time (short hold time). If there are new data packets to be transmitted, the connection is set up once again (transparent for the user). This mechanism is also known as a background connection setup or cleardown. Costs are only incurred when the line is actually used.
  - If “Short hold = no” is selected, a PSTN connection remains permanently active until the end criterion is received.
- Short hold (sec.)
  This parameter describes the length of time in seconds after which an inactive PSTN connection is cleared down.
- Callbk yes/no
  - If “Callbk = yes” is selected, a connection request is first of all denied. Then the first station number marked as outgoing in the remote structure found is called back. Three attempts are made to set up the connection, then the next outgoing station number is used. The system stops trying to set up the callback after three unsuccessful attempts.
  - If “Callbk = no” is selected, the connection is set up immediately.
- Remote analog modem
  If you select “yes”, the V.34 protocol in the B channel is used for an outgoing connection via the ISDN line.

- IP mapping yes/no
  If a number of different customers have the same IP address, you can use address mapping to achieve unique IP address assignment in the various customer LANs.
  - If “IP mapping = yes” is selected, you can map an IP address which is assigned to multiple customers to a unique “virtual” IP address. You can perform IP mapping for up to twenty address entries.

    Examples:
    IP data transfer from the customer LAN to the service center via the PSTN interface:
    IP customer LAN is transformed by HiPath 3000 into an IP virtual LAN.
    IP data transfer from the service center to the customer LAN via the PSTN interface:
    IP virtual LAN is transformed by HiPath 3000 into an IP customer LAN.
  - If “IP mapping = no” is selected, IP address mapping is not available.
- Security mechanisms for connection setup
  Use the PAP (PPP authentication protocol) and/or CHAP (challenge-handshake authentication protocol) to determine whether
  - the Plus Product (client) must be authenticated at HiPath 3000 (host) or
  - the HiPath 3000 (host) must be authenticated at the Plus Product (client).

  Authentication is based on the user ID and the password.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x	x
Hardware requirements	LIM or HiPath HG1500 board			
Software requirements	V5.0 or later	V1.2 or later	V1.2 or later	V1.2 or later

12.7 Voice over IP

Introduction

Voice over IP (VoIP) facilitates the transfer of voice data via IP networks. To ensure communication between the IP telephones concerned, the telephones must feature compatible IP communication stacks. H.323 is the overall standard which defines the framework for Voice over IP communication and the IP communication stacks. Other standards are also implemented.

Gateways are required to facilitate communication between IP-supported networks (LAN, intranet, Internet) and line-switched networks (ISDN, PSTN). A gateway is not required for "pure" voice over IP communication.

Gatekeepers perform the following tasks:

- Registration of IP workpoint clients:
  - System clients such as optiClient 130 5.0, optiPoint 400, optiPoint 410, optiPoint 420, optiPoint 600 (CorNet IP mode)
  - H.323 clients such as MS Windows NetMeeting
- Connection setup
- Access control

Basic Features of Version 5.0

In HiPath 3000, HG1500 boards enable Voice over IP (VoIP) (the transfer of voice data via IP networks).

In version 5.0, H.323 **gatekeeper functions** are integrated in the HiPath 3000 communication system and in the HiPath ComScendo service (on HiPath 5000). This means that every HiPath 3000 system with at least one HG1500 board and each HiPath ComScendo service is an individual gatekeeper zone to which their registered IP workpoint clients also belong.

H.323 communication between networked HiPath 3000 systems (nodes) should be considered as gatekeeper to gatekeeper communication. HG1500 boards in networked systems must not be registered. The CorNet-NQ protocol is used, tunneled in H.323 via Annex M1.

The **break down of HG1500 resources** into signaling and payload resources is a basic feature of version 5.0.

- Signaling resources
  This includes all node signaling data necessary for Voice over IP for IP-supported (LAN, intranet, internal) and line switched networks (ISDN, PSTN). These resources are provided centrally by one single HG1500 board, the signaling gateway (= HG1500 Gatekeeper), regardless of how many HG1500 boards the node has). HG1500 boards are defined as HG1500 gatekeepers by HiPath 3000 Manager E.
- Payload resources
  The node resources required for gateway transfer (between IP-supported and line switched networks) of VoIP voice data (payload) are provided by the media PC gateway (= HG1500 gateway). This can be one or several HG1500 boards.
  No payload resources are necessary for direct transfer between IP-supported networks. A HiPath 5000 equipped with HiPath ComScendo service can thus function as a VoIP system.

In systems with only one HG1500 board, the board functions as both a signaling gateway and a media PC gateway. The "Release gateway resources" flag must be activated in HiPath 3000 Manager E for this. If it is not activated, resources cannot be assigned.

In systems with several HG1500 boards, the payload resources are controlled by the node central **Resource Manager**. This is a self-configuring service. Signaling resources are provided centrally by the first HG1500 board. This signaling gateway accesses additional resources (CODEC'S, B channels, etc.) and signaling data (for example, RTP, RTCP) of the media PC gateway. This provides IP workpoint clients and other gateways with central access to the payload resources of all the HG1500 boards of a node.

Resources for functions not based on H.323 (for example, routing channels, vCAPI channels) are provided by each HG1500 board as before. In systems with several HG1500 boards, resources are only provided by the media gateway based on performance.

12.8 I/O Service Extensions

Definition

HiPath 3000/5000 stations can communicate with external applications via the CSTA interface. The new I/O Services feature with extensions for the CSTA interface is used for this purpose. The stations communicate with the application as follows:

1. User's input (keystrokes) is sent by the station to the application
2. Display information is sent by the application to the station

The implementation of this feature is similar to that of the HiPath 4000 data I/O service.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	CSTA	CSTA	CSTA	CSTA
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

12.8.1 CSTA Interface

Definition

By selecting an application ID, the station can address the associated CSTA application if this application has already been registered with the HiPath system. A registered application can address a station independently (e.g. to confirm an action on the display).

An I/O session can be started using a feature code or a function key. An I/O session can be started, resumed and stopped with the function key; the function key LED indicates the status of the I/O session (ready, active, interrupted).

During an I/O session, the station can operate the application with the aid of the navigation keys, dialing keypad, plus/minus keys, alphanumeric keypad (optiset memory), programmable keys and softkeys (CMI).

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**	**x**
Hardware requirements	CSTA	CSTA	CSTA	CSTA
Software requirements	V6.0 or later	V6.0 or later	V6.0 or later	V6.0 or later

Dependencies/Restrictions

- The I/O service feature will be available on Siemens display telephones. (UP0, IP stimulus telephones, CMI comfort telephones).
- There is no configuration option with which you could block access to the I/O service procedure for any station.
- A maximum of 10 applications can be logged onto one system simultaneously.
- Only one station can use a single I/O session. In the case of an interrupted session ("suspended" state) a second I/O session cannot be started; you must terminate the interrupted session beforehand.
- A subscriber can only start an I/O session in the "idle" or "call initiated" state.

13 Small Remote Site Concept

Implementing features, see also Manager E Emergency Mode

13.1 Introduction

Definition

This concept is based on scenarios where HiPath 4000 operates as a central system. HiPath 3000 systems are implemented in smaller branch offices (Small Remote Sites, SRS).

The central office and branch offices are networked via CorNet IP.

The core features of the SRS concept are evident in the event of an emergency, for example if the central HiPath 4000 or the IP network is down.

The IP workpoint clients that are registered during normal mode with the central HiPath 4000 react in the event of system failure, and register themselves automatically and independently with the HiPath 3000 system via the SRS concept.

These workpoint clients are then available to the user together with all HiPath 3000 features.

The IP workpoint clients required in this case are configured via Manager E.

The Small Remote Site concept is supported by:

- HiPath 3000 V5.0
- HiPath 4000 V2.0
- optiClient 410 economy, standard and advanced
- optiClient 130

optiPoint 410 entry without display is enabled; please note, however, that changes to the system are not indicated on the display.

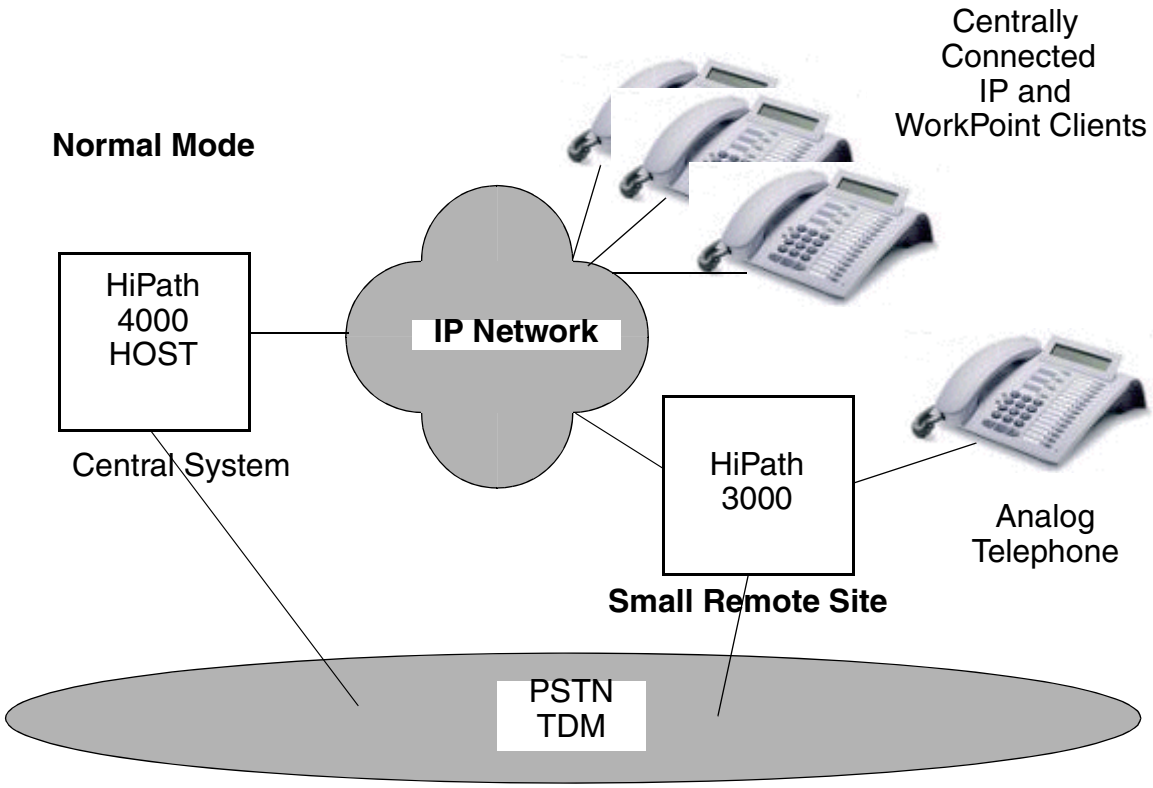
13.2 Activating the Feature

The feature is activated via the station using the code *9411 + CFSS call number, and deactivated using #9411. This is only possible from an IP station if SRST (Small Remote Sites Redundancy) is deactivated.

Using associated services, this service can also be activated/deactivated for the IP station by an authorized station. In the same way, the CFSS destination can be configured and activated, or deleted and deactivated via Assistant T, menu item 14 36, and Manager E (under “Setup station - Emergency”).

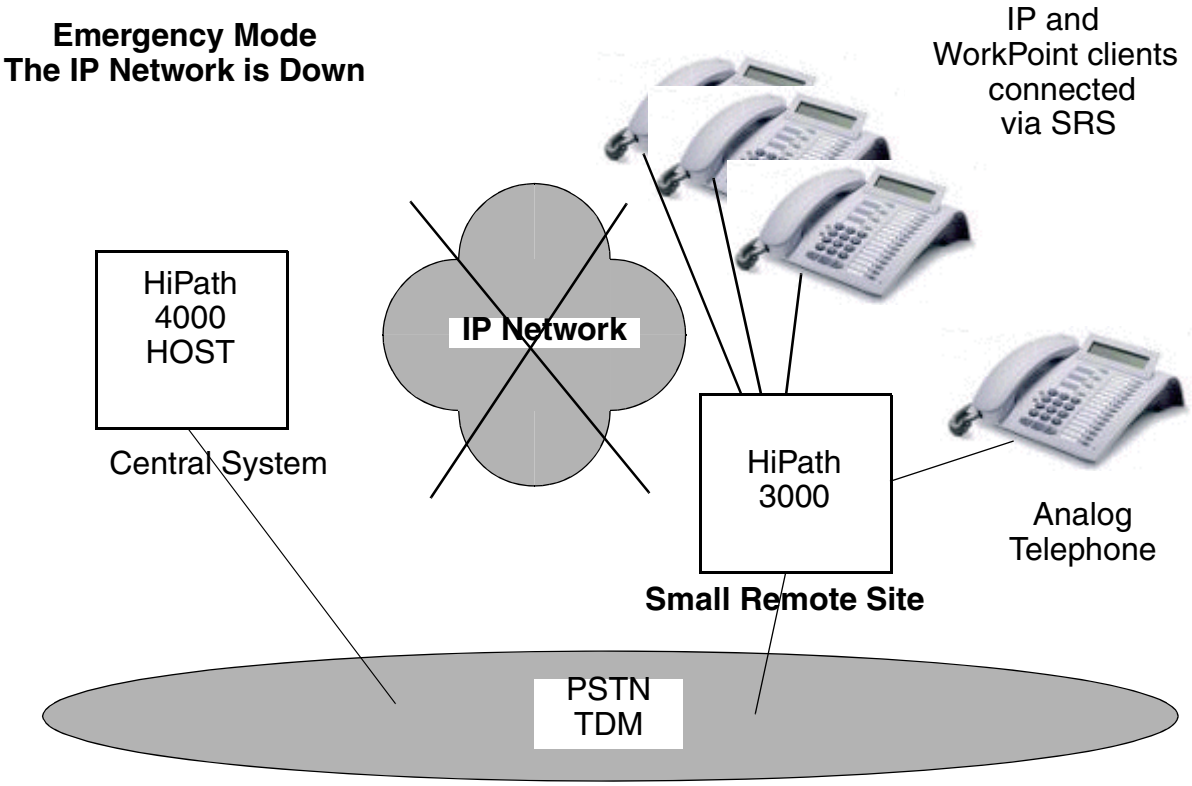
13.3 Operating Modes

13.3.1 Normal Mode



In normal mode, the IP workpoint clients in a branch office (SRS) are registered with the central HiPath 4000 system.

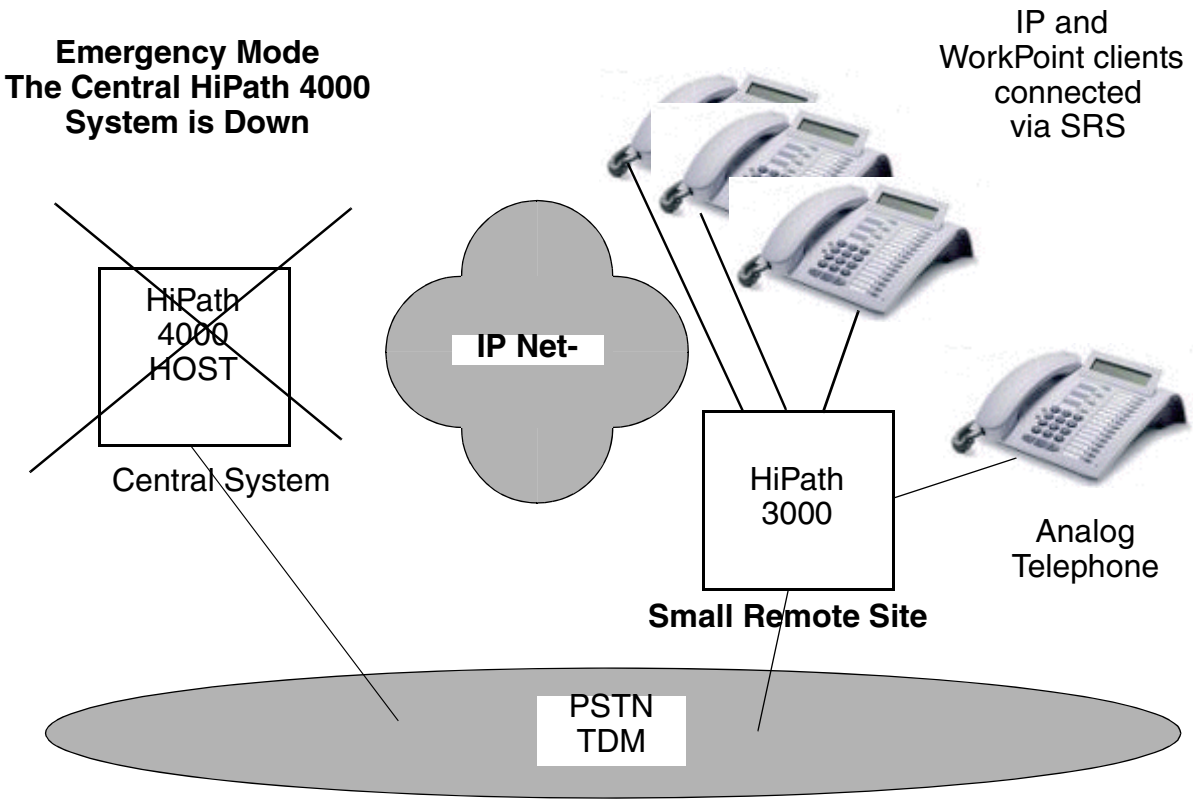
13.3.2 Emergency Mode (IP Networking is Down)



In emergency mode when the HiPath 4000 or the IP network fails, the IP workpoint clients must register automatically with the HiPath 3000 system via a corresponding configuration in the branch office.

The workpoint clients can be configured individually to switch to HiPath 3000 in emergency mode. In this case, both the IP workpoint clients and the corresponding communication system must be pre-configured. This permits emergency mode to be regulated individually for each workpoint client.

13.3.3 Emergency Mode (Central HiPath 4000 System is Down)



In emergency mode when the HiPath 4000 system is down, the IP workpoint clients must register automatically with the HiPath 3000 system via a corresponding configuration in the branch office.

The workpoint clients can be configured individually to switch to
HiPath 3000 in emergency mode. In this case, both the IP workpoint clients and the corresponding communication system must be pre-configured. This permits emergency mode to be regulated individually for each workpoint client.

13.3.4 Behavior of the Branch-Office IP Workpoint Clients in Emergency Mode

The following applies for the IP workpoint clients registered in an emergency with HiPath 3000 via SRS:

- The features of HiPath 3000 are available.
- The HiPath 3000 user interface is implemented in emergency mode.
- This also applies to the key layout of the IP client.
- The IP clients have a preconfigured database in the HiPath 3000 system for emergency mode.
- The functionality described is implemented in the standard system software.
- No HiPath 3000 feature is restricted or blocked.
- The system configuration must facilitate emergency mode. This means that stations, LCR, COS, etc., also require administration in this regard.
- In emergency mode, the display of the IP or workflow client shows a corresponding message. The display of the message can be administered via HiPath 3000 Manager E.
- In the HiPath 3000 system, preconfigured station numbers must be used for outgoing calls. This also applies to preconfigured COS entries.
- The LCR feature must be administered in HiPath 3000 in such a way that internal calls within the private network are handled via TDM lines.
- In emergency mode, calls can also be directed via preconfigured alternative LCR routes (e.g. for the operator).
- Calls can also be traced in emergency mode.
- There are no specific security requirements with regard to H.235 that deviate from the conditions generally valid for HiPath 3000 (HG 1500) and IP workpoint access.

13.4 HiPath 3000 V5.0 Requirements

Terminals such as optiPoint, optiClient or optiSet should not be operated at a HiPath 3000 V5.0 system that is used as a communication system in a branch office. Although there are no configuration restrictions, these stations should be configured so that only features required for emergency mode are available.

The configuration of features such as ACD, hunt groups, MULAP, etc., leads to unpredictable behavior, even if they are connected at the same physical location. In normal mode, terminals such as an optiSet are connected to the HiPath 3000 and optiPoints/optiClients are connected to the HiPath 4000. This is why only the features specified above are available when optiPoints/optiClients are connected to the HiPath 3000 in emergency mode.

Generally, HiPath 3000 does not prevent users or administrators from configuring features for emergency mode.

HiPath 3000 V5.0 supports alternative registration of HiPath 4000 IP work clients, in the event that the HiPath 4000 IP work clients lose their "connection" to HiPath 4000. If a HiPath 4000 is detected by an IP work client as unavailable in the network, the IP work client registers with a remote HiPath 3000 V5.0 that operates as a local gateway in a branch office.

As soon as the HiPath 4000 IP work client detects that the HiPath 4000 is available again, it reregisters automatically with the HiPath 4000 as its central system. The IP work client also reregisters automatically when a service engineer performs a manual reset.

The following emergency mode scenarios may occur in a branch office:

- The IP connection of a HiPath 4000 work client (connected in the branch office) to the central system is lost: emergency mode is activated.
- HiPath 4000 is down: emergency mode is activated for the configured IP work clients.
- HiPath 3000 is down: emergency mode is not activated.
- An optional HiPath Management Server is down: emergency mode is not activated.
- An optional HiPath 5000 Server is down: emergency mode is not activated.
- The TDM backup cannot be accessed: emergency mode is not activated.

- A HiPath 5000 is not supported as a branch office system.
- Cascading errors (e.g. an “emergency” HiPath error) are not taken into account.
- The selection of a suitable HiPath 3000 should be supported by HiPath Management, however this is optional.
- The switchover to a branch office system and the automatic switchover back to the central system is implemented by the IP work clients.

13.4.1 Requirements for Emergency Mode

In order to execute emergency mode, the following requirements must be met:

- Emergency mode is currently restricted to optiPoint 410 and optiClient 130.
- HiPath systems in branch offices and in the central system are connected via an IP network.
- HiPath Management (HiPath Tele Service HTS in particular) is available as an optional extra.
- IP work clients support both HiPath 4000 mode and HiPath 3000 mode.
- They are independently-administered HiPath 4000 and HiPath 3000 domains.
- There are no restrictions to HiPath 3000 features in emergency mode.
- In the central system, in the branch office, or in both systems, a numbering plan is provided for incoming CO traffic in normal mode, based on customer requirements.
- As well as the numbering plan for CO traffic as mentioned, there is also a backup (based on TDM) between the central system and the branch office for emergency mode.
- The IP work clients are assigned all necessary parameters so they can register with a HiPath 4000, or alternatively, with a HiPath 3000.

13.4.2 Configuration of HiPath 3000 Stations for Emergency Mode

For emergency mode, IP work clients can be configured within the HiPath 3000 system, based on the normal optiPoint station configuration.

A new CFSS (Call Forwarding Station Out of Service) destination for stations that are out of service can be configured specifically for all optiPoint stations.

CFSS (Call Forwarding Station Out of Service) has a higher priority than normal call forwarding (if both are activated), if the SRSR flag is activated.

14 HiPath ComScendo Service Resilience

For information on implementing features, see HiPath 3000 Manager E HiPath ComScendo Service Resilience

14.1 Definition

A HiPath 3000/HiPath 5000 network can contain the following components:

- HiPath 3000 systems with HiPath ComScendo Service
- HiPath 5000 PCs with HiPath ComScendo Service
  The HiPath ComScendo Service is effectively a fully-fledged HiPath node (IP softswitch) that is configured as software on a PC. Apart from the dedicated TDM characteristics, all of the features of V5.0 are available.
- HiPath 5000 Real-Time Services Manager (RSM) as the central administration unit in an IP network, with or without HiPath ComScendo Service
  All relevant nodes (HiPath 3000 and HiPath 5000 with HiPath ComScendo Service) can be centrally administered by creating a "single system image".

The HiPath ComScendo Service Resilience feature guarantees failure tolerance for the IP workpoint clients associated with a HiPath ComScendo Service or a HiPath 3000 system. In the event of a HiPath 5000 PC or HiPath 3000 system failure or an error in the HiPath 3000 ComScendo Service, the configured IP stations (resilience stations) are assigned to a standby system (resilience destination). This can be another HiPath ComScendo Service or a HiPath 3000 system.

A standby system always represents a node in a HiPath 3000/HiPath 5000 network, even if it is only a HiPath ComScendo Service that functions solely as a standby system.

Only default features are available to the IP stations on the standby system (see page 14-3).

This feature requires a HiPath 3000/HiPath 5000 network with HiPath 5000 RSM, as monitoring and control are performed by the Feature server's Resilience Service Application (RSA). If the Feature server is unable to access a node, three additional connection attempts are initiated. If these attempts also fail, HiPath ComScendo Service Resilience is activated.

The availability of the failed system is checked again. When the Feature server can access this node again, the resilience stations are once again assigned to their home system.

HiPath ComScendo Service Resilience is not suitable for the resolution of network problems. To guarantee failsafe network operation, a suitably configured IP network is required.
If the Feature server is unable to access two or more nodes, this indicates a network problem and HiPath ComScendo Service Resilience is not activated.

When configuring a standby system, remember that both the “regular” stations and the resilience stations have to be set up. The default station numbers and names of the resilience stations must be deleted.

HiPath ComScendo licenses must be available for the resilience stations on the home and standby systems.

If a node failure is detected and HiPath ComScendo Service Resilience is activated, the resilience stations are assigned to their standby system (resilience destination). The internal station numbers configured on the home system, the DID numbers, and the names of the resilience stations are transferred to the standby system. The Feature server is responsible for automatically updating the numbering tables (CAR tables) in the HiPath 3000/HiPath 5000 network.

When the node is operational again, the resilience stations are once again assigned to their home system and the original situation is thus restored. On the standby system, the station numbers and names of the resilience stations are automatically deleted and the numbering tables (CAR tables) are updated in the HiPath 3000/HiPath 5000 network.

Using HiPath 3000 Manager E, it is possible to define whether each system client (optiClient 130, optiPoint 400, optiPoint 410, optiPoint 420, optiPoint 600 (in CorNet-IP mode)) is a resilience station. H.323 clients, such as, HiPath AP 1120 are not supported.

Model-Specific Data

Subject	HiPath 3800	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath ComScendo Service
Feature available in	x	x	x	x	x
Hardware requirements	System client (optiClient 130, optiPoint 400, optiPoint 410, optiPoint 420, optiPoint 600)				
Software requirements	V5.0 SMR-4 or later	V5.0 SMR-4 or later	V5.0 SMR-4 or later	V5.0 SMR-4 or later	V5.0 SMR-4 or later
General requirements	HiPath 5000 Real-Time Services Manager (RSM)				

Dependencies/Restrictions

Subject	Dependency/Restriction
Logical ports 0 and 1	The stations on logical ports 0 and 1 of a system (the first two lines under “HiPath 3000 Manager E - Settings - Setup station - Stations”) are reserved for system administration and are not supported by the feature HiPath ComScendo Service Resilience.
Numbering	A resilience station must be reachable at the same number on the home system and on the standby system. For this reason, only a closed numbering plan may be used. Open numbering is not possible.
H.323 clients	H.323 clients (such as, HiPath AP 1120) are not supported.
Scope of functions in standby mode	Default features (default key assignment, conference, call forwarding, callback, call hold, parking, etc.) can be used. Station-specific features (key assignment, groups, caller lists, call forwarding, ring no answer, etc.) are not available.
System client: password, station type	The settings for “Password” (Authentication active) and “Station type” (Mobile, Non mobile or Mobile blocked) defined under “HiPath 3000 Manager E - Stationview - Workpoint Client: System Client” are also taken into account in standby mode.
Applications	Applications are not supported in standby mode.
optiClient Attendant	If there is an optiClient Attendant available, a manual system update must be performed when switching from normal to standby mode and vice versa (optiClient Attendant: File - Settings - System - button for system update). The netwide BLF function is not supported in standby mode. In standby mode, only the BLF information of the local node is displayed after the manual system update.

14.2 HiPath ComScendo Service Resilience Scenarios Supported

14.2.1 HiPath 5000 PC with HiPath ComScendo Service –> HiPath 5000 RSM with HiPath ComScendo Service

In the following scenario a HiPath ComScendo Service installed on a HiPath 5000 RSM has been defined as the standby system.

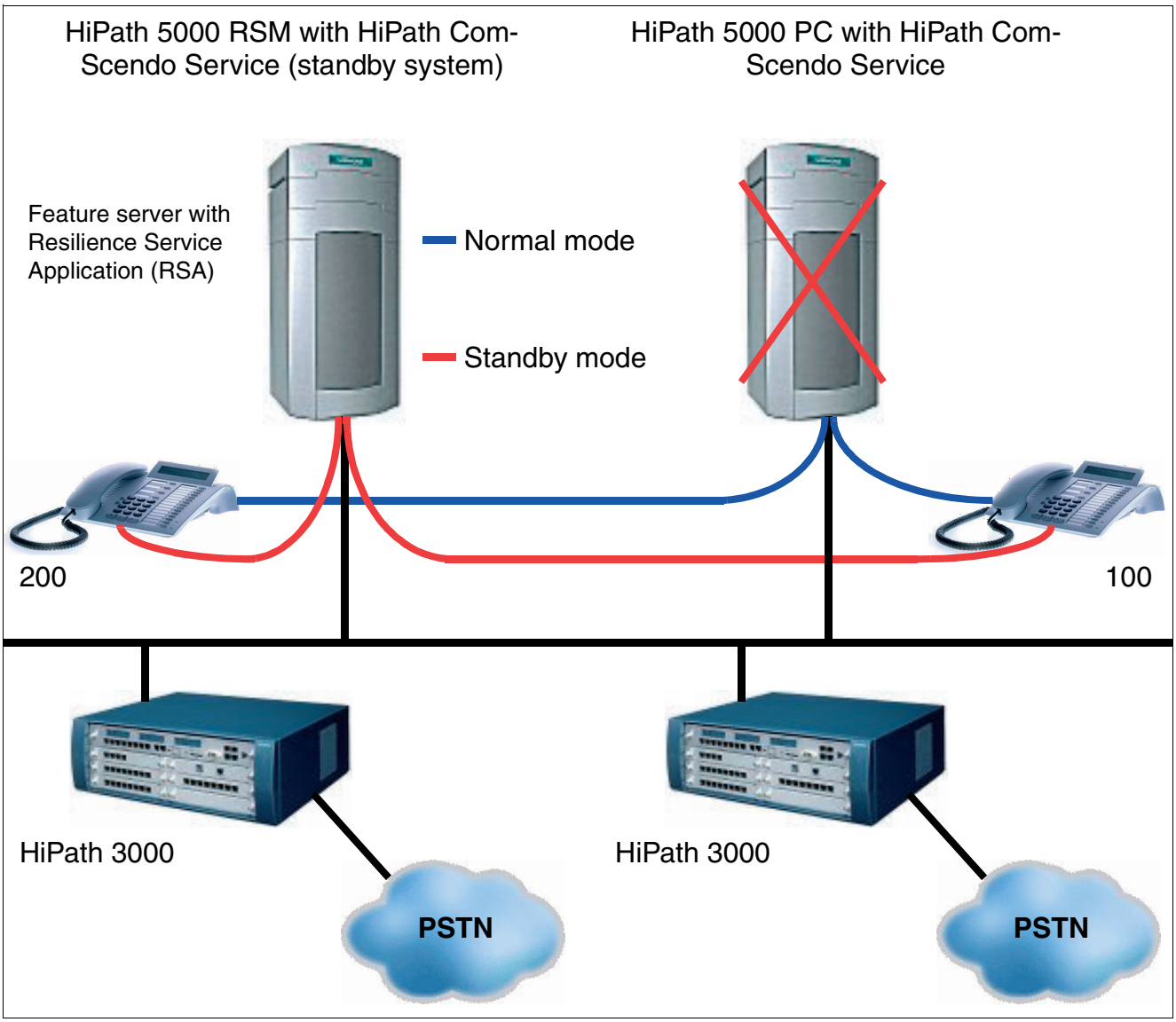


Figure 14-1 HiPath ComScendo Service Resilience: HiPath 5000 PC with HiPath Com-Scendo Service –> HiPath 5000 RSM with HiPath ComScendo Service

Stations 100 and 200 are reachable internally and externally via numbers 100 and 200 in both normal mode and standby mode.

14.2.2 HiPath 5000 PC with HiPath ComScendo Service –> HiPath 3000 with HiPath ComScendo Service

In this scenario the HiPath 3000 systems available in the network function as standby systems.

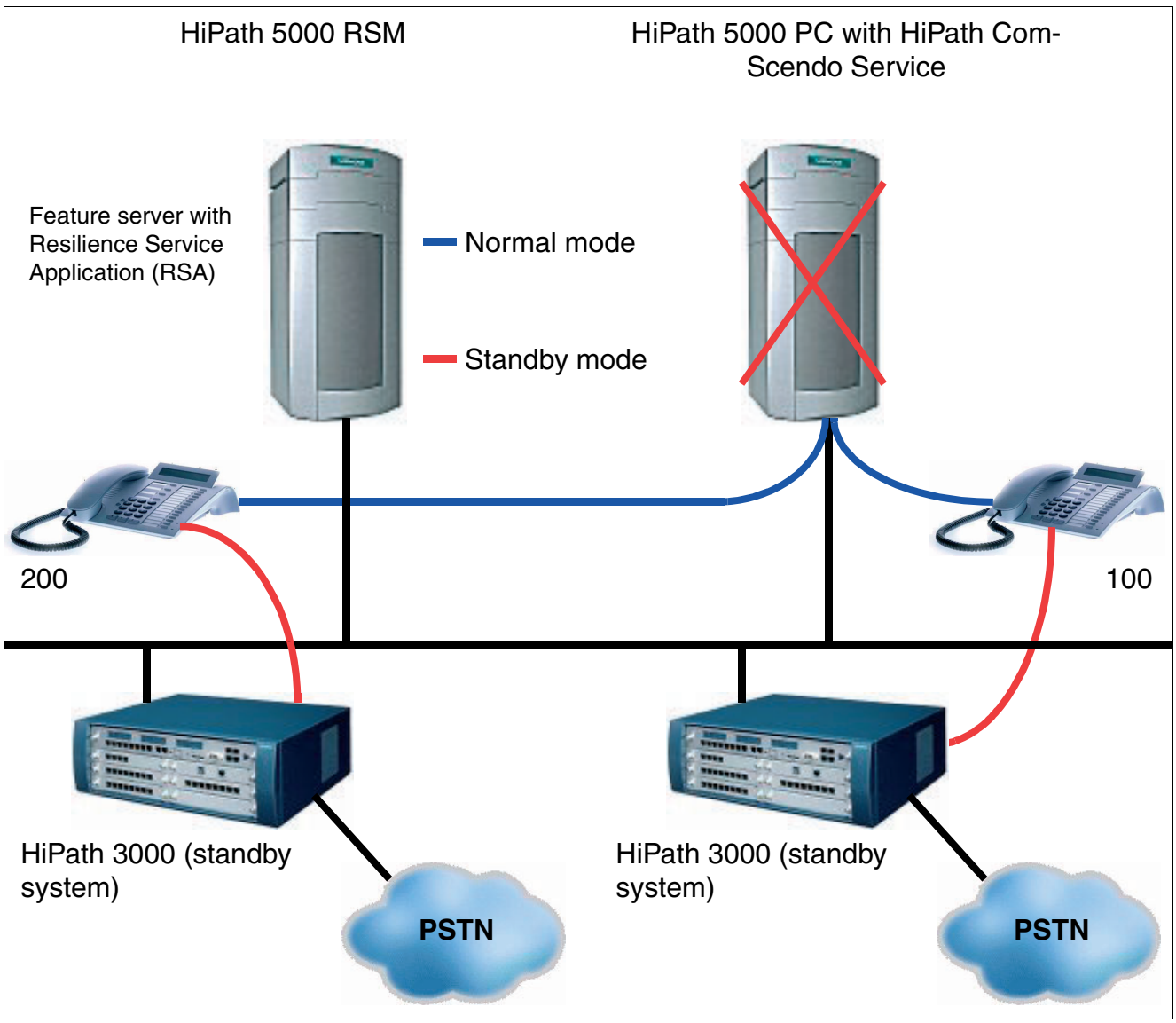


Figure 14-2 HiPath ComScendo Service Resilience: HiPath 5000 PC with HiPath Com-Scendo Service –> HiPath 3000 with HiPath ComScendo Service

Stations 100 and 200 are reachable internally and externally via numbers 100 and 200 in both normal mode and standby mode.

14.2.3 HiPath 3000 with HiPath ComScendo Service –> HiPath 3000 with HiPath ComScendo Service

In the following scenario a HiPath 3000 system functions as a standby system.

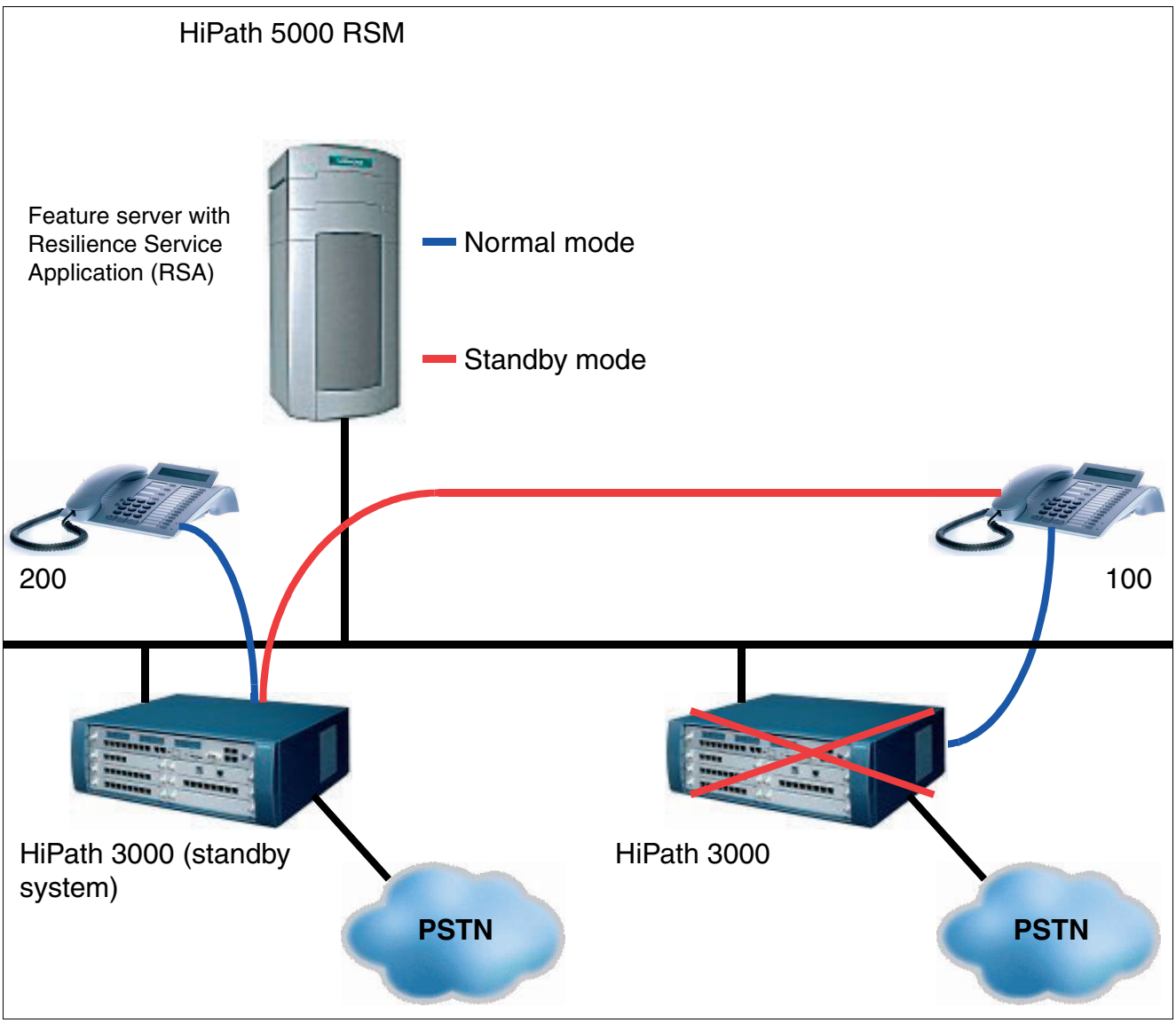


Figure 14-3 HiPath ComScendo Service Resilience: HiPath 3000 with HiPath ComScendo Service –> HiPath 3000 with HiPath ComScendo Service

Station 100 is reachable internally and externally via number 100 in both normal mode and standby mode.

14.3 Configuration Notes

Configuration of HiPath 5000 RSM

The following entry must be made in the vsrs.ini file before starting the Feature server service:

```
[Global]
RSA=1
```

Configuration of a standby system

When configuring a standby system (HiPath ComScendo Service or HiPath 3000) for the feature HiPath ComScendo Service Resilience, you must follow the procedure below:

1. Perform country initialization.
   The system is bootstrapped. Previously saved data, such as, system speed dialing destinations and classes of service are deleted or reset to the basic settings (default).
2. Execute the licensing procedure.
   HiPath ComScendo licenses are required for both the “regular” stations and the resilience stations.
3. Configure IP stations and resilience stations.
4. Delete the internal station numbers, DID numbers, and names of all resilience stations.

Configuration of a home system

A resilience destination (= IP address of the standby system) must be defined for all resilience stations in the home system (HiPath 3000 Manager E - Stationview - Workpoint Client).

Configuration of IP workpoint clients (resilience stations)

Enter settings for the devices via the Web interface:

1. Enter the second gateway with the same number under “Administration/System/Gateway Settings”.
2. Select “SRSR enabled” and “Automatic Switch back” under “Administration/System/SRSR Settings”.
   Change the parameters “Switch to home expiry timeout”, “Switch to standby expiry timeout”, and “TC_TEST expiry timeout” from the default value of 20 to “5”.

Index

Numerics

3PTY
See three-party conference

A

Account code (ACCT) 10-12
Administration of Plus Products via PPP 12-10
Administration via LAN 12-3
Administration via PPP 12-8
Advice of charge 11-10
Advice of charges during a call (not for U.S.) 10-2
Advisory messages 6-19
Allocation mode 11-32
Alternate carriers (U.S. Only) 5-16
Analog direct inward dialing with MFC-R2 4-39
Announcement before answering 4-35
configuring 4-35
Announcements 2-15
AOC
See advice of charge
AOC-D (not for U.S.) 10-2
Appointments 8-25
Assigning speed-dialing numbers to ITR groups 4-71
Associated dialing 8-12
Associated services 8-14
Automatic call completion on no reply (CCNR) on the trunk interface 4-78
Automatic callback when free or busy 6-7
Automatic incoming call connection with UCD 3-42
Automatic Number Identification ANI 3-62
Automatic Recall 2-18
Automatic Wake-up System 8-25
Available/Not available 3-37

B

B Channel Allocation 3-77
B channel cut-through operation mode 11-59
Basic electronic key telephone system 11-63
Basic MULAP groups 8-43
Basic rate interface 11-29
CAID 11-35, 11-36
CO protocol 11-36
parameters 11-35
PDID 11-35
SPID 11-35, 11-36
Basic-rate trunks
and least cost routing (U.S. only) 5-19
B-channel allocation mode 11-32
B-channel selection 11-56
terminating 11-58
Block dialing 4-55

C

CACH EKTS
See Call appearance call handling electronic key telephone system
CAID
See call appearance 11-36
See call appearance identification
Call allocation 4-18
Call appearance call handling electronic key telephone system 11-64
Call appearance identification 11-35
definition 11-36
Call collect barring for ISDN trunks 11-28
Call collect barring per station 4-38
Call collect barring per trunk 4-37
Call connection 4-20
Call deflection 11-14
Call detail recording
at station 10-6
attendant (not for U.S.) 10-8
central 10-16
compressed output format 10-20
compressed output format (LAN) 10-23

long output format 10-30
per trunk (not for U.S.) 10-10
Call detail recording, attendant 10-8
Call duration display on telephone 10-4
Call forwarding 3-16, 11-11
Call Forwarding (CF)
US ISDN 11-50
Call forwarding busy and no answer 3-14
Call forwarding unconditional (CFU) 11-13
Call forwarding-no answer
after a timeout 3-11
Call Hold 2-1
Call hold 11-19
Call keys 4-11
least cost routing and (U.S. only) 5-19
Call management
announcement before answering 4-35
feature 3-6
Call pickup
within call pickup groups 3-55
Call pickup from answer machine 3-58
Call waiting 3-4, 11-21
U.S. ISDN 11-42, 11-53
Call Waiting Tone 3-4
Call-by-call service 11-39
Call-charge display with Currency 10-34
Called and calling party number display services 11-65
Caller ID After Release (Police) 11-27
Calling line identification presentation 11-49
Calling Line Identification Presentation CLIP 11-5, 11-54
Calling Line Identification Restriction 11-7
Calling Line Identification Restriction CLIR 11-54
Calls
data 11-62
Carrier access methods for LCR (U.S. only) 5-16
Carrier types 5-15
Carrier types (LCR) 5-3, 5-15
corporate network (CN) 5-6
dial-in control server (DICS) 5-5
main network supplier 5-6
Mercury Communications Limited single stage (not for U.S.) 5-3
Mercury Communications Limited two stage (not for U.S.) 5-4
Carrier-select override (U.S. only) 5-18
least cost routing 5-23
CAS centralized attendant service 4-41
CCBS
See completion of calls to busy subscribers
CD
See call deflection
CDRA
See call detail recording, attendant
CDRC
See call detail recording central 10-30
CDRC outgoing without connection 10-16
CDRC ticket without connect 10-16
CDRC via IP 12-6
CDRS
See call detail recording at station
CDRT
See call detail recording per trunk (not for U.S.)
Central Busy Signaling optiClient Attendant 9-35
Central office protocol 11-36
Centralized attendant service CAS 4-41
CF
See Call forwarding
CFNA
See call forwarding-no answer
CH
See call hold
Change display 8-58
Class of service
least cost routing (U.S. only) 5-18
Classes of service 4-60
CLIP no screening 4-79
CLIR
See Calling Line Identification Restriction
Closed numbering 9-16
CM
See call management

Codes for outgoing calls 11-26
COLP
See Connected Line Identification and Presentation
COLR
See Connected Line Identification Restriction
Completion of calls to busy subscribers 11-18
Compressed output format for CDRC 10-20
Compressed output format for CDRC via LAN 10-23
Computing accuracy 10-34
ComScendo Service 12-13
Conference 2-9, 11-20
Conference call
US ISDN 11-43
Configurable toll restriction 4-60
Connected Line Identification COLI 11-54
Connected Line Identification Presentation 11-8
Connected Line Identification Restriction 11-9
Connected party displays 11-66
Consultation hold 2-17
CorNet-N
access for least cost routing (U.S. only) 5-16
Credit card call access 11-45
Cross networking 9-15
CSO
see carrier-select override
CSTA via IP 12-4
Customer-specific display 8-58
CW
See call waiting

D

Data calls 11-62
Date and time display 8-2
D-channel encoding type 11-32
Dedicated service selection 11-40
Deferring a call 3-60
Delete all station numbers 8-26
Denied list for undialed trunks 4-70
Desk Sharing 8-59
Dial plan
least cost routing (U.S. only) 5-17, 5-20
Dial tone detection 4-56
Dialed number identification service 11-55
Dial-in control server access for least cost routing (U.S. only) 5-17
DID
See direct inward dialing
Direct inward dialing 4-25, 11-2
U.S. ISDN 11-46
Direct inward system access
description 4-28
DISA
See direct inward system access
Display
called party 11-65
connected party 11-65, 11-66
Display Number of Stations with Direct Trunk Access (for Austria Only) 8-16
Distinctive Ringing 3-1
DNIS
See dialed number identification service 11-55
Do Not Disturb 3-50
Door opener 6-9
DSS key 6-2
DTMF DID 4-33
DTMF or rotary pulse dialing
selecting in least cost routing (U.S. only) 5-19
DTMF tones
and least cost routing (U.S. only) 5-19
Dual-tone multifrequency
converting for PRI 11-60
Dual-tone multifrequency transmission (DTMF) 3-64

E

E&M 9-15
E911 emergency call service for USA 4-75
ECT
See explicit call transfer

Editing station numbers 6-27
Editing the telephone number 6-27
EKTS
See electronic key telephone system
Electronic key telephone system
DID 11-46
Electronic notebook
and least cost routing (U.S. only) 5-19
Emergency 8-60
Emergency call service ECS 4-75
Emergency Prefix 8-60
Emulation type 11-32
En-bloc dialing 11-61
End-of-dialing recognition 4-58
Enhanced radio paging equipment (not for U.S.)
features 6-14
Entrance telephone 6-9
Equal Access 11-44
Euro-ISDN features 11-1
Executive MULAP groups 8-43
Executive/secretary configuration, see Top configuration 8-35
Expensive route identification (U.S. only) 5-18
Explicit call transfer 11-24
External call forwarding 11-13
External calls
restricting 3-68

F

Fax waiting message/Answer machine 3-59
Features
correlation with least cost routing (U.S. only) 5-18
Flex call 3-75
Forced account codes
and least cost routing (U.S. only) 5-19
Foreign exchange non-ISDN facility 11-39
Frame/line/encoding 11-32

G

Gatekeeper Functions 12-13
Group call 3-20
Group call with busy signaling 3-22
Groups
UCD 3-29

H

HiPath ComScendo Service Resilience 14-1
Hold
U.S. ISDN 11-51
Hoteling 8-20
Hotline 3-73
Hunt group 3-24

I

Incoming calls
night answer 4-23
Incoming Preference 8-47
Individual lock code 3-66
Intercept Conditions 4-30
Inter-exchange carriers
CAC 5-15
CIC 5-15
inter-exchange carriers
operator access 11-45
protocols 11-31
Interfaces
BRI 11-29
PRI 11-29
Internal phonebook 6-21
Internal traffic 6-1
INWATS facility 11-39
IP mobility 8-59
IP Mobility Extension 8-60
ISDN 11-29
CAID 11-35, 11-36
SDID 11-36
SPID 11-35
See also U.S. ISDN or Euro-ISDN features

K

Keypad
converting DTMF for PRI 11-60
Keypad dialing 4-73

L

Language settings 8-10

Languages, loading 8-10
LDAP Telephone Directory 6-23
Least Cost Routing
Alternate Carriers (U.S. Only) 5-16
Least cost routing
and basic-rate trunks (U.S. only) 5-19
and call keys (U.S. only) 5-19
and DTMF tones (U.S. only) 5-19
and electronic notebook (U.S. only) 5-19
and forced account codes (U.S. only) 5-19
and MUSAP keys (U.S. only) 5-19
and repertory dial keys (U.S. only) 5-19
and station redial (U.S. only) 5-19
and system speed-dialing (U.S. only) 5-19
and toll restriction (U.S. only) 5-19
carrier access methods (U.S. only) 5-16
carrier-select override (U.S. only) 5-18, 5-23
CorNet-N (U.S. only) 5-16
correlation with other features (U.S. only) 5-18
dial plan (U.S. only) 5-17, 5-20
dial rules (U.S. only) 5-24
dial-in control server (U.S. only) 5-17
expensive route identification (U.S. only) 5-18
main network supplier (U.S. only) 5-16
MCL single stage access (U.S. only) 5-16
MCL two stage access (U.S. only) 5-16
number handling (U.S. only) 5-18
operation (U.S. only) 5-27
outdial rules
letters (U.S. only) 5-24
parameters (U.S. only) 5-24
outdial rules (U.S. only) 5-17, 5-23
primary rate access (U.S. only) 5-17
route table (U.S. only) 5-23
route table routes (U.S. only) 5-23
route table search order (U.S. only) 5-23
routing tables (U.S. only) 5-20
schedule (U.S. only) 5-24
selecting DTMF or rotary pulse dialing (U.S. only) 5-19
time of day evaluation (U.S. only) 5-17
U.S. only 5-13
Least cost routing class of service (U.S. only) 5-18
Least Cost Routing LCR 5-1
Least cost routing overflow (U.S. only) 5-18
Leave group call/hunt group (stop hunt) 3-27
LED support 6-2
Letters
for LCR outdial rules (U.S. only) 5-24
Local exchange carriers
carrier types 5-15
operator access 11-45
protocols 11-31
Location Identification Number LIN 4-75
Long output format for CDRC 10-30

M

Main network supplier for least cost routing (U.S. only) 5-16
Malicious call identification 11-16
Management information bases (MIB) 12-1
Manager/secretary configuration, see Top configuration 8-35
MCID
See Malicious call identification
MCL single stage carrier access (U.S. only) 5-16
MCL two stage carrier access (U.S. only) 5-16
Message texts/mailboxes (information function) 6-15
Message waiting 6-15
U.S. ISDN 11-67
voicemail 11-68
Message waiting indication at the trunk interface 4-17
MFC-R2 trunk 4-39
MIB 12-1
Missed Calls List/Saving Station Numbers 3-53
Mobile PIN 3-75
MULAP 8-28, 8-43

Multi-device connection 11-38
Multi-Device Connections 4-1
Multilingual text output 8-10
Multiple Subscriber Number (MSN) 11-3, 11-4
Multiple Subscriber Numbers 11-3, 11-4
Multiple subscriber numbers
U.S. ISDN 11-47
MUSAP keys
and least cost routing (U.S. only) 5-19
Music on hold
internal/external source 2-12
MWI at the trunk interface 4-17

N

N11 Access 11-45
Names 6-6
called party display 11-65
calling party display 11-65
translating station numbers for speed dialing 4-16
National and international codes for outgoing calls 11-26
Networking 9-1
call forwarding with rerouting 9-27
call waiting 9-23
callback on free/busy 9-25
CDR with networking 9-19
central attendant console 9-32
conference 9-31
consultation hold/transfer/pickup 9-21
DISA Intern 9-37
distinctive ringing in the network 9-24
incoming calls 9-19, 9-20
recall 9-22
satellite capability 9-12
sharing central voice mail server 9-36
station number/name display 9-26
supported features 9-3
toggle 9-30
toll restriction 9-17
Night answer
activating 4-23
Night service 4-22
Number of B channels for PRI parameters 11-32
Numbering 9-16

O

Offset 10-28
Open numbering 9-16
Operation of least cost routing (U.S. only) 5-27
Operator-assisted credit card call access 11-45
optiClient Attendant 2-21, 9-35
optiPoint Attendant 2-21
optiPoint BLF 6-2
optiPoint key module 6-2
Originating B Channel Selection Implementation 11-57
Outdial rules
least cost routing
letters (U.S. only) 5-24
parameters (U.S. only) 5-24
least cost routing (U.S. only) 5-23, 5-24
Outdial rules for least cost routing (U.S. only) 5-17
Outgoing Preference 8-48
OUTWATS facility 11-39
Overflow
least cost routing (U.S. only) 5-18
Overflow (UCD) 3-41
Overload Indication 2-25
Override 2-23

P

Parameters
for LCR dial rules (U.S. only) 5-24
Parking 2-3
Payload Encryption 8-67
Phantom direct inward dialing 11-35
assigning numbers 11-37
Pickup
call key 4-11
trunk key 4-9
Point-to-point connection 11-25
PRI carrier access for least cost routing (U.S. only) 5-17

Primary rate interface 11-29
B-channel allocation 11-32
D-channel encoding type 11-32
emulation type 11-32
frame/line/encoding 11-32
number of B channels 11-32
protocol type 11-31
trunk group calling service 11-33
primary rate interface 11-29
Private trunk 4-65
Procedure keys 8-54
ProCenter Applications 8-65
Protocol type, primary rate interface 11-31
PSE
*See*radio paging equipment (not for U.S.)
PSTN partner 12-11
PtP
See point-to-point connection
Public network trunks
setting up in least cost routing (U.S. only) 5-19

Q

QSig 9-39
busy override 9-44
central attendant position 9-44
COS changeover 9-46
intercept by central attendant position 9-44
resetting the lock code 9-46

R

Radio paging equipment 6-13
PSE simple 6-13
via ESPA 6-14
Recorded announcement/music on Hold (UCD) 3-39
Redial 4-43
Reject calls 3-63
Relays 8-4
Relocate 8-20
Repertory dial keys
and least cost routing (U.S. only) 5-19
Request for Support (UCD) 3-37
Reset activated features 8-18
Ringer cutoff 3-52
Room monitor 6-25
Route table
least cost routing (U.S. only) 5-23
Route table routes
least cost routing (U.S. only) 5-23
Route table search order
least cost routing (U.S. only) 5-23
Router call number 12-8
Routes 4-5
Routing tables (LCR) 5-7
Routing tables (U.S. only) 5-20

S

Schedule, LCR (U.S. only) 5-24
Screened Transfer 2-8
Search order
of LCR route table 5-23
Selecting DTMF or rotary pulse dialing in LCR (U.S. only) 5-19
Selective seizure of a DID number using a MUSAP key 4-26
Sensors 8-8
Service profile identifier 11-35
BRI 11-36
maximum values 11-36
Services in the talk state 8-17
Setting the dialing method for analog stations 2-20
Shared transfer switch 2-26
Signaling Encryption 8-67
Signaling of direct inward dialing numbers for incoming calls 4-27
Signaling resources 12-14
Silent monitoring 3-48
Silent reversal at start and end of call 10-1
Simple PSE
See radio paging equipment
Simplified dialing
prime line 4-53
SIP Networking 9-13
SIP Protocol 9-11
SIP Telephones 8-64
SNMP 12-1

messages 12-2
traps 12-2
Speaker Call/Direct Answering/Internal Paging (OptiPage) 6-10
Special Access Selection 11-45
Speed dialing
station 4-51
system 4-46
Station number configuration via Manager T 3-61
Station numbers, deleting 8-26
Station redial
and least cost routing (U.S. only) 5-19
Station speed dialing in system 4-51
Stations
universal night answer 4-23
Stimulus interface 4-73
Storing procedures 8-54
SUB
See subaddressing
Subaddressing 11-15
Subscriber groups 3-19
System number - incoming 4-79
System number - outgoing 4-79
System speed dialing
outgoing external traffic 4-46
System speed dialing with HiPath 3000/HiPath 5000 9-38
System speed-dialing
and least cost routing (U.S. only) 5-19
System speed-dialing in tenant systems 4-49
System telephone lock (changeover) 3-68

T

Targeted Call Pickup Outside of a Pickup Group 3-56
Team configuration 8-28
example with 2 members 8-28
example with 8 members 8-31
Team keys 8-32
Team/Top 8-28
Telephone lock intercept 4-72
Teleworking 8-59
Temporary signaling method changeover 3-64
Temporary station number display suppression 4-68
Tenant Service 7-1
Tenant services
configuring 7-2
Terminal portability (TP) 11-22
Terminating B-channel selection 11-58
Text messages 6-15
Three-party conference 11-20, 11-52
Tie trunk non-ISDN facility 11-39
Time of day evaluation for least cost routing (U.S. only) 5-17
Timed reminders 8-25
Toggle
trunk key 4-9
Toggle/Connect 2-5
Toll fraud monitoring 10-31
Toll restriction 4-60
and least cost routing (U.S. only) 5-19
Top Configuration 8-35
Top configuration 8-35
example with 1 exec./1 secr. 8-35
example with 2 exec./2 secr. 8-37
Top keys 8-37
Traffic restriction groups 4-63
Transfer
US ISDN 11-41
Transfer before answering 2-6
Transfer from announcement 6-12
Transfer to UCD groups 3-47
Transit traffic 4-13
Translate station numbers to names for system speed dialing 4-16
Traps 12-2
Trunk dialing method 4-59
Trunk group calling service 11-33
Trunk keys 4-8
Trunk queuing 4-66
Trunk seizure type 4-53
Trunks
setting up in least cost routing (U.S. only) 5-19

U

U.S. ISDN
- B-channel allocation 11-32
- BRI 11-29
- CO protocol 11-36
- D-channel encoding type 11-32
- emulation type 11-32
- frame/line/encoding 11-32
- multi-device connection 11-38
- number of B channels (PRI) 11-32
- PRI 11-29
- trunk group calling service 11-33

UCD
- *See* universal call distribution

UCD call prioritization 3-34
UCD night service 3-44
UCD subscriber states 3-35
Universal call distribution 3-29
- group status display 3-45
- groups 3-29
- home agent 3-46
- queues 3-33
- wrap up 3-38

Universal call distribution (UCD) 3-28
Universal night answer position 4-23
US ISDN
- Anschlüsse 11-29
- BRI 11-29
- PRI 11-29
- protocol type 11-31

User to user signaling (UUS) 3-18
User to user signaling (UUS1) 11-23

V

V.24
- range extension for call data 10-33

Voice channel signaling security 8-1
Voicemail 11-68

W

Wrap up (UCD) 3-38